

1. Civil Work: 5) Depot & Maintenance Shop : B. Electrical Facilities (6)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case A-2 in 1996	1. Catenary	Lump sum		757	470	1,227	5,275	1,236	2,009	3,245	14,413
	2. Power Distribution	Lump sum		7,009	2,747	9,756	1,851	1,955	148	3,954	13,710
	3. Signalling	Lump sum		1,236	2,009	3,245	14,413	2,423	1,152	17,988	21,233
	4. Telecommunication	Lump sum		54	31	85	398	0	31	429	516
	Sub-total			9,056	5,257	14,313	21,937	4,871	1,750	28,558	42,871
	Indirect Cost					2,573				6,001	8,574
	Total					16,886				34,559	51,445

1. Civil Work: 5) Depot & Maintenance Shop : B. Electrical Facilities (7)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case C-2 in 1996	1. Catenary	Lump sum		778	521	1,299	6,041	552	481	7,074	8,373
	2. Power Distribution	Lump sum		7,009	2,747	9,756	1,851	1,955	148	3,954	13,710
	3. Signalling	Lump sum		1,545	2,682	4,227	19,301	3,234	1,543	24,078	28,305
	4. Telecommunication	Lump sum		54	31	85	768	0	61	829	914
	Sub-total			9,386	5,981	15,367	27,061	5,741	2,233	35,935	51,302
	Indirect Cost					3,078				7,182	10,260
	Total					18,445				43,117	61,562
Case-G in 1993	1. Catenary	Lump sum		133	135	268	1,577	141	125	1,843	2,111
	2. Power Distribution	Lump sum		26,325	915	27,240	0	634	0	634	27,874
	3. Signalling	Lump sum		62	221	283	1,901	267	152	2,320	2,603
	4. Telecommunication	Lump sum		3,218	698	3,916	4,797	167	381	5,345	9,261
	Sub-total			29,738	1,969	31,707	8,275	1,209	658	10,142	41,848
	Indirect Cost					2,511				5,858	8,369
	Total					34,218				16,000	50,218

1. Civil Work: 5) Depot & Maintenance Shop : B. Electrical Facilities (8) (Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case-F in 1993	1. Catenary	Lump sum		216	201	417	2,491	214	200	2,905	3,322
	2. Power Distribution	Lump sum		26,325	914	27,239	0	635	0	635	27,874
	3. Signalling	Lump sum		371	894	1,265	6,789	1,078	543	8,410	9,675
	4. Telecommunication	Lump sum		3,218	700	3,918	5,167	167	413	5,747	9,665
	Sub-total			30,130	2,709	32,839	14,447	2,094	1,156	17,697	50,536
	Indirect Cost					3,033				7,074	10,107
	Total					35,872				24,771	60,643
Each Case in 2010 Except Case E, F, G	1. Catenary	Lump sum		287	280	567	3,548	309	282	4,139	4,706
	2. Power Distribution	Lump sum		0	0	0	0	0	0	0	0
	3. Signalling	Lump sum		927	1,342	2,269	9,519	1,618	761	11,898	14,167
	4. Telecommunication	Lump sum		0	0	0	0	0	0	0	0
	Sub-total			1,214	1,622	2,836	13,067	1,927	1,043	16,037	18,873
	Indirect Cost					1,133				2,641	3,774
	Total					3,969				18,678	22,647

1. Civil Work: 5) Depot & Maintenance Shop : B. Electrical Facilities (9) (Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case-F in 2010	1. Catenary	Lump sum		161	99	260	1,085	103	86	1,274	1,534
	2. Power Distribution	Lump sum		0	0	0	0	0	0	0	0
	3. Signalling	Lump sum		309	664	973	4,826	801	386	6,013	6,986
	4. Telecommunication	Lump sum		0	0	0	0	0	0	0	0
	Sub-total			470	763	1,233	5,911	904	472	7,287	8,520
	Indirect Cost					512				1,192	1,704
	Total					1,745				8,479	10,224
Case-G in 2010	1. Catenary	Lump sum		83	68	151	914	73	74	1,061	1,212
	2. Power Distribution	Lump sum		0	0	0	0	0	0	0	0
	3. Signalling	Lump sum		309	673	982	4,888	811	391	6,090	7,072
	4. Telecommunication	Lump sum		0	0	0	370	0	30	400	400
	Sub-total			392	741	1,133	6,172	884	495	7,551	8,684
	Indirect Cost					521				1,215	1,736
	Total					1,654				8,766	10,420

1. Civil Work: 6) Miscellaneous (Summary) (1)

(Unit: 1,000 Sucres)

Applicable Case	Item	1990			1993			1996		
		L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total
Basic Case	A. Underground Utilities	118,754	135,345	254,099						
	B. Road Improvement	276,734	65,938	342,672						
	C. Others	59,377	0	59,377						
	Total	454,865	201,283	656,148						
Case A-1	A. Underground Utilities	45,413	125,658	171,071	73,341	9,687	83,028			
	B. Road Improvement	37,664	8,974	46,638	239,070	56,964	296,034			
	C. Others	22,707	0	22,707	36,671	0	36,671			
	Total	105,784	134,632	240,416	349,082	66,651	415,733			

1. Civil Work: 6) Miscellaneous (Summary) (2)

(Unit: 1,000 Sucres)

Applicable Case	Item	1990			1993			1996		
		L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total
Case A-2	A. Underground Utilities	45,413	125,658	171,071	48,066	6,348	54,414	25,276	3,338	28,614
	B. Road Improvement	37,664	8,974	46,638	165,899	39,530	205,429	73,170	17,435	90,605
	C. Others	22,707	0	22,707	24,033	0	24,033	12,638	0	12,638
	Total	105,784	134,632	240,416	237,998	45,878	283,876	111,084	20,773	131,857
Case B-1	A. Underground Utilities	94,887	135,296	230,183	25,276	3,338	28,614			
	B. Road Improvement	203,563	48,504	252,067	73,170	17,435	90,605			
	C. Other	67,444	0	67,444	12,638	0	12,638			
	Total	365,894	183,800	549,694	111,084	20,773	131,857			
Case C-1	A. Underground Utilities	27,579	3,643	31,222	91,174	131,702	222,876			
	B. Road Improvement	81,120	19,329	100,449	195,613	46,609	242,222			
	C. Others	13,790	0	13,790	45,587	0	45,587			
	Total	122,489	22,972	145,461	332,374	178,311	510,685			

1. Civil Work: 6) Miscellaneous (Summary) (3)

(Unit: 1,000 Sucres)

Applicable Case	Item	1990			1993			1996		
		L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total
Case C-2	A. Underground Utilities	27,579	3,643	31,222	47,841	6,319	54,160	43,334	125,384	168,718
	B. Road Improvement	81,120	19,329	100,449	165,126	39,345	204,471	30,488	7,264	37,752
	C. Others	13,790	0	13,790	23,921	0	23,921	21,667	0	21,667
	Total	122,489	22,972	145,461	236,888	45,664	282,552	95,489	132,648	228,137
Case D-1	A. Underground Utilities	75,420	9,961	85,381	43,334	125,384	168,718			
	B. Road Improvement	246,246	58,674	304,920	30,488	7,264	37,752			
	C. Others	37,710	0	37,710	21,667	0	21,667			
	Total	359,376	68,635	428,011	95,489	132,648	228,137			
Case E	A. Underground Utilities	45,413	125,658	176,071						
	B. Road Improvement	37,664	8,974	46,638						
	C. Others	22,707	0	22,707						
	Total	105,784	134,632	240,416						

1. Civil Work: 6) Miscellaneous (Summary) (4)

(Unit: 1,000 Sucres)

Applicable Case	Item	1990			1993			1996		
		L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total
Case F	A. Underground Utilities	94,887	135,296	253,680						
	B. Road Improvement	203,563	48,504	252,067						
	C. Others	47,444	0	47,444						
	Total	345,894	183,800	529,694						
Case G	A. Underground Utilities	75,420	9,961	83,381						
	B. Road Improvement	246,246	58,674	304,920						
	C. Others	37,710	0	37,710						
	Total	359,376	68,635	428,011						

1. Civil Work: 5) Miscellaneous A. Underground Utilities (1)

(Unit: 1,000 Sucres)

Applicable Case	Item	Specification	Q'ty	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
					Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
Basic Case in 1990	Supply Pipe $\phi=0.4$		3,950	m	58,816	9,638	7,505	75,959	0	0	0	0	0	75,959
	Supply Pipe $\phi=1.5$		1,400	m	11,382	4,396	3,402	19,180	88,200	0	4,340	13,160	105,700	124,880
	Sewer Pipe $\phi=0.5$		600	m	8,140	1,780	990	10,910	0	0	0	0	0	10,910
	Sub-total				76,338	15,814	11,897	106,049	88,200	0	4,340	13,160	105,700	211,749
	Indirect Cost							12,705					29,645	42,350
	Total							118,754					135,345	254,099
Case A-1 in 1990, Case A-2 in 1990, Case-E in 1990	Supply Pipe $\phi=0.4$		352	m	5,241	859	669	6,769	0	0	0	0	0	6,769
	Supply Pipe $\phi=1.5$		1,400	m	11,382	4,396	3,402	19,180	88,200	0	4,340	13,160	105,700	124,880
	Sewer Pipe $\phi=0.5$		600	m	8,140	1,780	990	10,910	0	0	0	0	0	10,910
	Sub-total				24,763	7,035	5,061	36,859	88,200	0	4,340	13,160	105,700	147,559
	Indirect Cost						GT6X+	8,554				GT14X+	19,958	28,512
	Total							45,413					125,658	176,071
Case A-1 in 1993	Supply Pipe $\phi=0.4$		3,598	m	53,574	8,779	6,836	69,190	0	0	0	0	0	69,190
	Supply Pipe $\phi=1.5$		0	m										
	Sewer Pipe $\phi=0.5$		0	m										
	Sub-total				53,574	8,779	6,836	69,190	0	0	0	0	0	69,190
	Indirect Cost							4,151					9,687	13,838
	Total							73,341					9,687	83,028

1. Civil Work: 5) Miscellaneous A. Underground Utilities (2)

(Unit: 1,000 Sucres)

Applicable Case	Item	Specification	Qty	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
					Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
Case A-2 in 1993	Supply Pipe $\phi=0.4$		2,358	m	35,111	5,754	4,480	45,345	0	0	0	0	0	45,345
	Supply Pipe $\phi=1.5$		0	m										
	Sewer Pipe $\phi=0.5$		0	m										
	Sub-total				35,111	5,754	4,480	45,345	0	0	0	0	0	45,345
	Indirect Cost							2,721					6,348	9,069
	Total							48,066					6,348	54,414
Case A-2 in 1996, Case B-1 in 1993	Supply Pipe $\phi=0.4$		1,240	m	18,464	3,026	2,356	23,845	0	0	0	0	0	23,845
	Supply Pipe $\phi=1.5$		0	m										
	Sewer Pipe $\phi=0.5$		0	m										
	Sub-total				18,464	3,026	2,356	23,845	0	0	0	0	0	23,845
	Indirect Cost							1,431					3,338	4,769
	Total							25,276					3,338	28,614
Case B-1 in 1990, Case F-1 in 1990	Supply Pipe $\phi=0.4$		2,710	m	40,352	6,612	5,149	52,113	0	0	0	0	0	52,113
	Supply Pipe $\phi=1.5$		1,400	m	11,382	4,396	3,402	19,180	88,200	0	4,340	13,160	105,700	124,880
	Sewer Pipe $\phi=0.5$		600	m	8,140	1,780	990	10,910	0	0	0	0	0	10,910
	Sub-total				59,874	12,788	9,541	82,203	88,200	0	4,340	13,160	105,700	211,400
	Indirect Cost							12,684					29,596	42,280
	Total							94,887					135,296	253,680

1. Civil Work: 5) Miscellaneous A. Underground Utilities (3)

(Unit: 1,000 Sucres)

Applicable Case	Item	Specification	Qty	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
					Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
Case C-1 in 1990, Case C-2 in 1990	Supply Pipe $\phi=0.4$		1,353	m	20,146	3,301	2,571	26,018	0	0	0	0	0	26,018
	Supply Pipe $\phi=1.5$		0	m										
	Sewer Pipe $\phi=0.5$		0	m										
	Sub-total				20,146	3,301	2,571	26,018	0	0	0	0	0	26,018
	Indirect Cost							1,561					3,643	5,204
	Total							27,579					3,643	31,222
Case C-1 in 1993	Supply Pipe $\phi=0.4$		2,597	m	38,669	6,337	4,934	49,940	0	0	0	0	0	49,940
	Supply Pipe $\phi=1.5$		1,400	m	11,382	4,396	3,402	19,180	88,200	0	4,340	13,160	105,700	124,880
	Sewer Pipe $\phi=0.5$		600	m	8,140	1,780	990	10,910	0	0	0	0	0	10,910
	Sub-total				58,191	12,513	9,326	80,030	88,200	0	4,340	13,160	105,700	185,730
	Indirect Cost							11,144					26,002	37,146
	Total							91,174					131,702	222,876
Case C-2 in 1993	Supply Pipe $\phi=0.4$		2,347	m	34,947	5,727	4,459	45,133	0	0	0	0	0	45,133
	Supply Pipe $\phi=1.5$		0	m										
	Sewer Pipe $\phi=0.5$		0	m										
	Sub-total				34,947	5,727	4,459	45,133	0	0	0	0	0	45,133
	Indirect Cost							2,708					6,319	9,027
	Total							47,841	0	0	0	0	6,319	54,160

1. Civil Work: 5) Miscellaneous A. Underground Utilities (4)

(Unit: 1,000 Sucres)

Civil Work: 3) Miscellaneous A. Underground utilities (in US dollars)														
Applicable Case	Item	Specification	Q'ty	Unit	Local Currency Portion				Foreign Currency Portion				Grand Total	
					Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance		Total
Case C-2 in 1996, Case D-1 in 1993	Supply Pipe $\phi=0.4$		250	m	3,723	610	475	4,808	0	0	0	0	0	4,808
	Supply Pipe $\phi=1.5$		1,400	m	11,382	4,396	3,402	19,180	88,200	0	4,340	13,160	105,700	124,880
	Sewer Pipe $\phi=0.5$		600	m	8,140	1,780	990	10,910	0	0	0	0	0	10,910
	Sub-total				23,245	6,786	4,867	34,898	88,200	0	4,340	13,160	105,700	140,598
	Indirect Cost							8,436					19,684	28,120
	Total							43,334					125,384	168,718
Case D-1 in 1990, Case-G in 1990	Supply Pipe $\phi=0.4$		3,700	m	55,093	9,028	7,030	71,151	0	0	0	0	0	71,151
	Supply Pipe $\phi=1.5$		0	m										
	Sewer Pipe $\phi=0.5$		0	m										
	Sub-total				55,093	9,028	7,030	71,151	0	0	0	0	0	71,151
	Indirect Cost							4,269					9,961	14,230
	Total							75,420					9,961	85,381

1. Civil Work: 6) Miscellaneous B. Road Improvement (1)

(Unit: 1,000 Sucres)

Civil Work: 6) Miscellaneous 8. Road Improvement 127														
Applicable Case	Item	Specification	Q'ty	Unit	Local Currency Portion				Foreign Currency Portion				Total	Grand Total
					Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance		
Basic Case in 1990	Road Reform		118,000	m ²	198,240	25,960	35,400	259,600	0	0	25,960	0	25,960	285,560
	Indirect Cost							17,134					39,978	57,112
	Total							276,734					65,938	342,672
Case A-1 in 1990, Case A-2 in 1990, Case-E in 1990	Road Reform		16,060	m ²	26,981	3,533	4,818	35,332	0	0	3,533	0	3,533	38,865
	Indirect Cost							2,332					5,441	7,773
	Total							37,664					8,974	46,638
Case A-1 in 1993, Case D-1 in 1990	Road Reform		101,940	m ²	171,259	22,427	30,582	224,268	0	0	22,427	0	22,427	246,695
	Indirect Cost							14,802					34,537	49,339
	Total							239,070					56,964	296,034
Case A-2 in 1993	Road Reform		70,740	m ²	118,843	15,563	21,222	155,628	0	0	15,563	0	15,563	171,191
	Indirect Cost							10,271					23,967	34,238
	Total							165,899					39,530	205,429

1. Civil Work: 6) Miscellaneous B. Road Improvement (2)

(Unit: 1,000 Sucres)

Applicable Case	Item	Specification	Q'ty	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
					Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
Case A-2 in 1996, Case B-1 in 1993	Road Reform		31,200	m ²	52,416	6,864	9,360	68,640	0	0	6,864	0	6,864	75,504
	Indirect Cost							4,530					10,571	15,101
	Total							73,170					17,435	90,605
Case B-1 in 1990, Case-F in 1990	Road Reform		86,800	m ²	145,824	19,096	26,040	190,960	0	0	19,096	0	19,096	210,056
	Indirect Cost							12,603					29,408	42,011
	Total							203,563					48,504	252,067
Case C-1 in 1990, Case C-2 in 1990	Road Reform		34,590	m ²	58,111	7,610	10,377	76,098	0	0	7,610	0	7,610	83,708
	Indirect Cost							5,022					11,719	16,741
	Total							81,120					19,329	100,449
Case C-1 in 1993	Road Reform		83,410	m ²	140,129	18,350	25,023	183,502	0	0	18,350	0	18,350	201,852
	Indirect Cost							12,111					28,259	40,370
	Total							195,613					46,609	242,222

1. Civil Work: 6) Miscellaneous B. Road Improvement (3)

(Unit: 1,000 Sucres)

Applicable Case	Item	Specification	Q'ty	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
					Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
Case C-2 in 1993	Road Reform		70,410	m ²	118,289	15,490	21,123	154,902	0	0	15,490	0	15,490	170,392
	Indirect Cost							10,224					23,855	34,079
	Total							165,126					39,345	204,471
Case C-2 in 1996 Case D-1 in 1993	Road Reform		13,000	m ²	21,840	2,860	3,900	28,600	0	0	2,860	0	2,860	31,460
	Indirect Cost							1,888					4,404	6,292
	Total							30,488					7,264	37,752
Case D-1 in 1990 Case G in 1990	Road Reform		105,000	m ²	176,400	23,100	31,500	231,000	0	0	23,100	0	23,100	254,100
	Indirect Cost							15,246					35,574	50,820
	Total							246,246					58,674	304,920

2. Electrical Facilities

2. Electrical Facilities

(Unit: 1,000 Sucres)

1) Electrical Facilities (Summary) (1)

Case	Item	1990			1993			1996			2000		
		L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total
Basic Case	1. Substation	175,361	962,639	1,138,000	4,018	55,210	59,228				8,037	110,422	118,459
	2. Power Distribution	180,183	385,323	565,506							1,397	290	1,687
	3. Signalling & Telecommunication	59,525	338,383	397,908							2,473	14,716	17,189
	4. Others	30,800	0	30,800									
	(1) Cost for EMELEC (Construction of 69KV Incoming Line)	(24,800)	(0)	(24,800)									
	(2) Cost for IETEL (Installation of Subscriber Line)	(6,000)	(0)	(6,000)									
	Total	445,869	1,686,345	2,132,214	4,018	55,210	59,228				11,907	125,428	137,335

2. Electrical Facilities (Summary) (2)

(Unit: 1,000 Sucres)

Case	Item	1990			1993			1996			2000		
		L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total
Case A-1	1. Substation	106,632	593,506	700,138	72,743	424,341	497,089				8,037	110,422	118,459
	2. Power Distribution	87,207	188,583	275,790	92,976	196,740	289,716				1,397	290	1,687
	3. Signalling & Telecommunication	32,677	191,234	223,911	28,521	157,927	186,448				2,473	14,716	17,189
	4. Others	28,000	0	28,000	2,800	0	2,800						
	(1) Cost for EMELEC (Construction of 69KV Incoming Line)	(22,000)	(0)	(22,000)	(2,800)	(0)	(2,800)						
	(2) Cost for IETEL (Installation of Subscriber Line)	(6,000)	(0)	(6,000)									
	Total	254,516	973,323	1,227,839	197,045	779,008	976,053				11,907	125,428	137,335
Case A-2	1. Substation	106,632	593,506	700,138				72,748	424,341	497,089	8,037	110,422	118,459
	2. Power Distribution	87,207	188,583	275,790	31,793	58,682	90,475	61,994	138,234	200,228	1,397	290	1,687
	3. Signalling & Telecommunication	32,677	191,234	223,911	12,944	69,935	82,879	18,120	96,001	114,121	2,473	14,716	17,189
	4. Others	28,000	0	28,000				2,800	0	2,800			
	(1) Cost for EMELEC (Construction of 69KV Incoming Line)	(22,000)	(0)	(22,000)				(2,800)	(0)	(2,800)			
	(2) Cost for IETEL (Installation of Subscriber Line)	(6,000)	(0)	(6,000)									
	Total	254,516	973,323	1,227,839	44,737	128,617	173,354	155,662	658,576	814,238	11,907	125,428	137,335

2. Electrical Facilities (Summary) (3)

(Unit: 1,000 Sucres)

Case	Item	1990			1993			1996			2000		
		L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total
Case B-1	1. Substation	106,632	593,506	700,138	72,748	424,341	497,089				8,037	110,422	118,459
	2. Power Distribution	118,352	247,108	365,460	61,994	138,234	200,228				1,397	290	1,687
	3. Signalling & Telecommunication	43,229	246,730	289,959	17,968	102,432	120,400				2,473	14,716	17,189
	4. Others	28,000	0	28,000	2,800	0	2,800						
	(1) Cost for EMELEC (Construction of 69KV Incoming Line)	(22,000)	(0)	(22,000)	(2,800)	(0)	(2,800)						
	(2) Cost for IETEL (Installation of Subscriber Line)	(6,000)	(0)	(6,000)	(0)	(0)	(0)						
	Total	296,213	1,087,344	1,383,557	155,510	665,007	820,517				11,907	125,428	137,335
Case C-1	1. Substation	71,937	414,365	486,302	107,446	603,484	710,930				8,037	110,422	118,459
	2. Power Distribution	70,955	148,280	219,235	109,228	237,042	346,270				1,397	290	1,687
	3. Signalling & Telecommunication	25,469	165,890	191,359	35,728	183,273	219,001				2,473	14,716	17,189
	4. Others	8,800	0	8,800	22,000	0	22,000						
	(1) Cost for EMELEC (Construction of 69KV Incoming Line)	(2,800)	(0)	(2,800)	(22,000)	(0)	(22,000)						
	(2) Cost for IETEL (Installation of Subscriber Line)	(6,000)	(0)	(6,000)	(0)	(0)	(0)						
	Total	177,161	728,535	905,696	274,402	1,023,799	1,298,201				11,907	125,428	137,335

2. Electrical Facilities (Summary) (4)

(Unit: 1,000 Sucres)

Case	Item	1990			1993			1996			2000		
		L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total
Case C-2	1. Substation	71,937	414,365	486,302	34,695	179,139	213,834	72,748	424,341	497,089	8,037	110,422	118,459
	2. Power Distribution	70,955	148,280	219,235	31,793	58,682	90,475	78,249	178,525	256,774	1,397	290	1,687
	3. Signalling & Telecommunication	25,469	165,890	191,359	12,944	69,935	82,879	24,995	120,212	145,207	2,473	14,716	17,189
	4. Others	8,800	0	8,800	2,000	0	2,000	20,000	0	20,000			
	(1) Cost for EMELEC (Construction of 69KV Incoming Line)	(2,800)	(0)	(2,800)	(2,000)	(0)	(2,000)	(20,000)	(0)	(20,000)			
	(2) Cost for IETEL (Installation of Subscriber Line)	(6,000)	(0)	(6,000)	(0)	(0)	(0)	(0)	(0)	(0)			
	Total	177,161	728,535	905,696	81,432	307,756	389,188	195,992	723,078	919,070	11,907	125,428	137,335
Case D-1	1. Substation	106,632	593,506	700,138	72,748	424,341	497,089				8,037	110,422	118,459
	2. Power Distribution	102,095	206,819	308,914	78,249	178,525	256,774				1,397	290	1,687
	3. Signalling & Telecommunication	36,240	223,968	260,208	24,958	125,194	150,152				2,473	14,716	17,189
	4. Others	10,800	0	10,800	20,000	0	20,000						
	(1) Cost for EMELEC (Construction of 69KV Incoming Line)	(4,800)	(0)	(4,800)	(20,000)	(0)	(20,000)						
	(2) Cost for IETEL (Installation of Subscriber Line)	(6,000)	(0)	(6,000)	(0)	(0)	(0)						
	Total	255,767	1,024,293	1,280,060	195,955	728,060	924,015				11,907	125,428	137,335

2. Electrical Facilities (Summary) (5)

(Unit: 1,000 Sucres)

Case	Item	1990			1996			2000			2010		
		L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total
Case-E	1. Substation	105,971	604,359	710,330							4,018	55,210	59,228
	2. Power Distribution	87,351	188,613	275,964									
	3. Signalling & Telecommunication	33,060	197,404	230,464									
	4. Others	28,000	0	28,000									
	(1) Cost for EMELEC (Construction of 69KV Incoming Line)	(22,000)	(0)	(22,000)									
	(2) Cost for IETEL (Installation of Subscriber Line)	(6,000)	(0)	(6,000)									
	Total	254,382	990,376	1,244,758							4,018	55,210	59,228
Case-F	1. Substation	105,971	604,359	710,330							4,018	55,210	59,228
	2. Power Distribution	118,495	247,139	365,634									
	3. Signalling & Telecommunication	43,386	249,586	292,972									
	4. Others	28,000	0	28,000									
	(1) Cost for EMELEC (Construction of 69KV Incoming Line)	(22,000)	(0)	(22,000)									
	(2) Cost for IETEL (Installation of Subscriber Line)	(6,000)	(0)	(6,000)									
	Total	295,852	1,101,084	1,396,936							4,018	55,210	59,228

2. Electrical Facilities (Summary) (6)

(Unit: 1,000 Sucres)

Case	Item	1990			1996			2000			2010		
		L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total	L.C	F.C	Total
Case-G	1. Substation	105,971	604,359	710,330							4,018	55,210	59,228
		102,240	206,851	309,091									
	3. Signalling & Telecommunication	36,316	225,305	261,621									
	4. Others	10,800	0	10,800									
	(1) Cost for EMELEC (Construction of 69KV Incoming Line)	(4,800)	(0)	(4,800)									
	(2) Cost for IETEL (Installation of Subscriber Line)	(6,000)	(0)	(6,000)									
	Total	255,327	1,036,315	1,291,642							4,018	55,210	59,228

2. Electrical Facilities: 2) Substation (1)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Basic Case in 1990	1. No.1 & No.3 Substation	Place	2	30,737	5,762	36,499	293,735	8,320	23,658	327,713	364,213
	2. No.2, No.3, No.4 Substation	Place	3	48,970	9,290	58,260	416,757	12,480	33,340	462,577	528,387
	3. Substation Control Center Equipment	Lump sum		618	167	785	36,411	260	2,912	39,583	40,368
	4. Substation Building	Place	5	12,960	9,957	22,917	0	0	0	0	22,917
	Sub-total			93,285	25,176	118,461	748,903	21,060	59,910	829,873	948,334
	Indirect Cost					56,900				132,760	189,666
	Total					175,361				962,639	1,138,000
Basic Case in 1993, Case E, F, G, in 2010	1. Increase of Rectifier at No.3, No.2, or No.4 Substation	Lump sum		802	255	1,057	44,434	312	3,554	48,300	49,357
	Indirect Cost					2,961				6,910	9,871
	Total					4,018				55,210	59,228

2. Electrical Facilities: 2) Substation (2)

(Unit: 1,000-Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case A-1, A-2, B-1, D-1 in 1990	1. No.1 or No.5 Substation	Place	1	15,368	2,881	18,249	147,867	4,168	11,829	163,856	182,105
	2. No.2 or No.4, & No.3 Substation	Place	2	32,647	6,194	38,841	277,838	8,320	22,227	308,385	347,226
	3. Substation Control Center Equipment	Lump sum		618	167	785	36,411	260	2,912	39,583	40,368
	4. Substation Building	Place	3	7,776	5,974	13,750	0	0	0	0	13,750
	Sub-total			56,409	15,216	71,625	462,116	12,740	36,968	511,824	583,449
	Indirect Cost					35,007				81,682	116,689
	Total					106,632				593,506	700,138

2. Electrical Facilities: 2) Substation (3)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case A-1, B-1, D-1 in 1993 Case A-2, C-2 in 1996	1. No.1 or No.5 Substation	Place	1	15,368	2,881	18,249	147,867	4,160	11,828	163,856	182,105
	2. No.2 or No.4 Substation	Place	1	16,323	3,097	19,420	138,919	4,160	11,113	154,192	173,612
	3. Substation Building	Place	2	5,184	3,983	9,167	0	0	0	0	9,167
	4. Increase of Rectifier at No.3 Substation	Lump sum		802	255	1,057	44,434	312	3,554	48,300	49,357
	Sub-total			37,677	10,216	47,893	331,220	8,632	26,496	366,348	414,241
	Indirect Cost					24,855				57,993	82,848
	Total					72,748				434,341	497,089
Case C-1, C-2 in 1990	1. No.1 Substation	Place	1	15,368	2,881	18,249	147,867	4,160	11,829	163,856	182,105
	2. No.2 Substation	Place	1	16,323	3,097	19,420	138,919	4,160	11,113	154,192	173,612
	3. Substation Control Center Equipment	Lump sum		618	167	785	36,411	260	2,912	39,583	40,368
	4. Substation Building	Place	2	5,184	3,983	9,167	0	0	0	0	9,167
	Sub-total			37,493	10,128	47,621	323,197	8,580	25,854	357,631	405,252
	Indirect Cost					24,316				56,734	81,050
	Total					71,937				414,365	486,302

2. Electrical Facilities: 2) Substation (4)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case C-1 in 1993	1. No.5 Substation	Place	1	15,369	2,881	18,250	147,868	4,160	11,829	163,857	182,107
	2. No.4 Substation	Place	1	16,324	3,097	19,421	138,919	4,160	11,114	154,193	173,616
	3. No.3 Substation	Place	1	17,126	3,352	20,478	183,353	4,472	14,668	202,493	222,971
	4. Substation Building	Place	3	7,776	5,974	13,750	0	0	0	0	13,750
	Sub-total			56,595	15,304	71,899	470,140	12,792	37,611	520,543	592,442
	Indirect Cost					35,547				82,941	118,488
	Total					107,446				603,484	710,930
Case C-2 in 1993	1. No.3 Substation	Place	1	16,323	3,097	19,420	138,918	4,160	11,113	154,192	173,612
	2. Substation Building	Place	1	2,592	1,991	4,583	0	0	0	0	4,583
	Sub-total			18,915	5,088	24,003	138,919	4,160	11,113	154,192	178,195
	Indirect Cost					10,692				24,947	35,639
	Total					34,695				179,139	213,834

2. Electrical Facilities: 2) Substation (5)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case E, F, G in 1990	1. No. or No.5, 6 No.3 Substations	Place	2	30,737	5,762	36,499	295,735	8,320	23,658	327,713	364,212
	2. No.2 Substation	Place	1	16,323	3,097	19,420	138,919	4,160	11,113	154,192	173,612
	3. Substation Control Center Equipment	Lump sum	1	618	167	785	36,411	260	2,912	39,583	40,368
	4. Substation Building	Place	3	7,776	5,974	13,750	0	0	0	0	13,750
	Sub-total			55,454	15,000	70,454	471,065	12,740	37,683	521,488	591,942
	Indirect Cost					35,517				82,871	118,388
	Total					105,971				604,359	710,330

2. Electrical Facilities: 3) Power Distribution (1)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Basic Case in 1990	1. Structures	km	15.0	12,889	8,496	21,385	58,110	8,376	4,648	71,134	92,519
	2. Catenary Lines	km	15.0	0	4,299	4,299	69,703	5,662	5,576	80,941	85,240
	3. Feeder Lines	km	15.0	16,067	7,801	23,868	131,234	8,007	10,498	149,739	173,607
	4. Power Distribution	km	15.0	75,191	27,164	102,355	0	17,534	0	17,534	119,889
	Sub-total			104,147	47,760	151,907	259,047	39,579	20,722	319,348	471,255
	Indirect Cost					28,276				65,975	94,251
	Total					180,183				385,323	565,506
Case A-1, A-2 in 1990	1. Structures	km	7.0	7,476	4,818	12,294	32,141	4,769	2,571	39,481	51,775
	2. Catenary Lines	km	7.0	0	2,053	2,053	32,741	2,687	2,619	38,047	40,100
	3. Feeder Lines	km	7.0	7,537	3,664	11,201	61,738	3,756	4,939	70,433	81,634
	4. Power Distribution	km	7.0	34,984	12,885	47,869	0	8,447	0	8,447	56,316
	Sub-total			49,997	23,420	73,417	126,620	156,408	10,129	156,608	229,825
	Indirect cost					13,790				32,175	45,965
	Total					87,207				188,583	275,790

2. Electrical Facilities: 3) Power Distribution (2)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case A-1 in 1993	1. Structures	km	8.0	5,413	3,678	9,091	25,969	3,607	2,077	31,653	40,744
	2. Catenary Lines	km	8.0	0	2,246	2,246	36,962	2,975	2,957	42,894	45,140
	3. Feeder Lines	km	8.0	8,530	4,137	12,667	69,496	4,251	5,559	79,306	91,973
	4. Power Distribution	km	8.0	40,207	14,279	54,486	0	9,087	0	9,087	63,573
	Sub-total			54,150	24,340	78,490	132,427	19,920	10,593	162,940	241,430
	Indirect Cost					14,486				33,800	48,286
	Total					92,976				195,740	289,716
Case A-2, C-2, in 1993	1. Structures	km	2.4	1,576	1,058	2,634	7,504	1,036	600	9,140	11,774
	2. Catenary Lines	km	2.4	0	669	669	10,984	884	878	12,746	13,415
	3. Feeder Lines	km	2.4	2,574	1,225	3,799	20,450	1,253	1,636	23,341	27,140
	4. Power Distribution	km	2.4	15,285	4,882	20,167	0	2,900	0	2,900	23,067
	Sub-total			19,435	7,834	27,269	38,938	6,075	3,114	48,127	75,396
	Indirect Cost					4,524				10,555	15,079
	Total					31,793				58,682	90,475

2. Electrical Facilities: 3) Power Distribution (3)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case B-1 in 1990	1. Structures	km	9.4	9,052	5,876	14,928	39,645	5,805	3,171	48,621	63,949
	2. Catenary Lines	km	9.4	0	2,722	2,722	43,725	3,511	3,498	50,794	53,516
	3. Feeder Lines	km	9.4	10,111	4,889	15,000	82,188	5,010	6,375	93,773	108,773
	4. Power Distribution	km	9.4	49,775	17,653	67,428	0	11,284	0	11,284	78,712
	Sub-total			68,938	31,140	100,078	165,558	25,670	13,244	204,472	304,550
	Indirect Cost					18,274				42,636	60,910
	Total					118,352				247,108	365,460
Case B-1 in 1993 Case A-2 in 1996	1. Structures	km	5.6	3,837	2,620	6,457	18,465	2,571	1,477	22,513	28,970
	2. Catenary Lines	km	5.6	0	1,578	1,578	25,978	2,090	2,078	30,146	31,724
	3. Feeder Lines	km	5.6	5,956	2,912	8,868	49,046	2,997	3,923	55,966	64,834
	4. Power Distribution	km	5.6	25,540	9,539	35,079	0	6,250	0	6,250	41,329
	Sub-total			35,333	16,649	51,982	93,489	13,908	7,478	114,875	166,857
	Indirect Cost					10,012				23,359	33,371
	Total					61,994				138,234	200,228

2. Electrical Facilities: 3) Power Distribution (4)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case C-1, C-2 in 1990	1. Structures	km	5.9	4,430	2,855	7,285	19,847	2,781	1,587	24,215	31,500
	2. Catenary Lines	km	5.9	0	1,691	1,691	27,693	2,234	2,215	32,142	33,833
	3. Feeder Lines	km	5.9	6,213	3,075	9,288	51,942	3,158	4,155	59,255	68,543
	4. Power Distribution	km	5.9	30,865	10,864	41,729	0	7,091	0	7,091	48,820
	Sub-total			41,508	18,485	59,993	99,482	15,264	7,957	122,703	182,696
	Indirect Cost					10,962				25,577	36,539
	Total					70,955				148,280	219,235
Case C-1 in 1993	1. Structures	km	9.1	8,459	5,641	14,100	38,263	5,595	3,061	46,919	61,019
	2. Catenary Lines	km	9.1	0	2,608	2,608	42,010	3,428	3,361	48,799	51,407
	3. Feeder Lines	km	9.1	9,854	4,726	14,580	79,292	4,849	6,343	90,484	105,064
	4. Power Distribution	km	9.1	44,326	16,300	60,626	0	10,443	0	10,443	71,069
	Sub-total			62,639	29,275	91,914	159,565	24,315	12,765	196,645	288,559
	Indirect Cost					17,314				40,397	57,711
	Total					109,228				237,042	346,270

2. Electrical Facilities: 3) Power Distribution (5)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case D-1 in 1990	1. Structures	km	8.3	6,006	3,913	9,919	27,352	3,817	2,188	33,357	43,276
	2. Catenary Lines	km	8.3	0	2,360	2,360	38,677	3,118	3,094	44,889	47,249
	3. Feeder Lines	km	8.3	8,787	4,300	13,087	72,392	4,413	5,791	82,596	95,483
	4. Power Distribution	km	8.3	45,724	15,559	61,283	0	9,938	0	9,938	71,221
	Sub-total			60,517	26,132	86,649	138,421	21,286	11,073	170,780	257,429
	Indirect Cost					15,446				36,039	51,485
	Total					102,095				206,819	308,914
Case D-1 in 1993, Case C-2 in 1996	1. Structures	km	6.7	6,883	4,583	11,466	30,758	4,559	2,460	37,777	49,243
	2. Catenary Lines	km	6.7	0	1,939	1,939	31,026	2,544	2,482	36,052	37,991
	3. Feeder Lines	km	6.7	7,280	3,502	10,782	58,843	3,594	4,707	67,144	77,926
	4. Power Distribution	km	6.7	29,590	11,633	41,223	0	7,596	0	7,596	48,819
	Sub-total			43,753	21,657	65,410	120,627	18,293	9,649	148,569	213,979
	Indirect Cost					12,839				29,956	42,795
	Total					78,249				178,525	256,774

2. Electrical Facilities: 3) Power Distribution (6)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case E in 1990	1. Structures	km	7.0	7,476	4,818	12,294	32,141	4,769	2,571	39,481	51,775
	2. Catenary Lines	km	7.0	0	2,053	2,053	32,741	2,687	2,619	38,047	40,100
	3. Feeder Lines	km	7.0	7,537	3,664	11,201	61,738	3,756	4,939	70,433	81,634
	4. Power Distribution	km	7.0	35,107	12,897	48,004	0	8,457	0	8,457	56,461
	Sub-total			50,120	23,432	73,552	126,620	19,669	10,129	156,418	229,970
	Indirect Cost					13,799				32,195	45,994
	Total					87,351				188,613	275,964
Case F in 1990	1. Structures	km	9.4	9,052	5,876	14,928	39,645	5,805	3,171	48,621	63,549
	2. Catenary Lines	km	9.4	0	2,722	2,722	43,725	3,571	3,498	50,794	53,516
	3. Feeder Lines	km	9.4	10,111	4,889	15,000	82,188	5,010	6,575	93,773	108,773
	4. Power Distribution	km	9.4	49,898	17,665	67,563	0	11,294	0	11,294	78,857
	Sub-total			69,061	31,152	100,213	165,558	25,680	13,244	204,482	304,695
	Indirect Cost					18,282				42,657	60,939
	Total					118,495				247,139	365,634

(Unit: 1,000 Sucres)

2. Electrical Facilities: 3) Power Distribution (7)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case G in 1990	1. Structures	km	8.3	6,006	3,913	9,919	27,352	3,817	2,188	33,357	43,276
	2. Catenary Lines	km	8.3	0	2,360	2,360	38,677	3,118	3,094	44,889	47,249
	3. Feeder Lines	km	8.3	8,787	4,300	13,087	72,392	4,413	5,791	82,596	95,683
	4. Power Distribution	km	8.3	45,848	15,571	61,419	0	9,949	0	9,949	71,368
	Sub-total			60,641	26,144	86,785	138,421	21,297	11,073	170,791	257,576
	Indirect Cost					15,455				36,060	51,515
	Total					102,240				206,851	309,091

2. Electrical Facilities: 4) Signalling & Telecommunication (1)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Basic Case in 1990	1. Signals	km	15.0	5,807	14,225	20,032	100,284	18,196	8,022	126,502	146,534
	2. ATS Equipment	km	15.0	0	256	256	9,279	310	742	10,331	10,587
	3. CTC Equipment	Place	4	0	738	738	56,253	952	4,500	61,705	62,443
	4. Level Crossing Equipment	Place	1	0	113	113	1,851	146	148	2,145	2,258
	5. Telephone System	km	15.0	1,080	649	1,729	2,101	0	168	2,269	3,998
	6. Radio System	Lump sum		0	361	361	30,055	967	2,404	33,426	33,787
	7. Master Clock System	Place	12	2,592	1,389	3,981	4,814	478	385	5,677	9,658
	8. Public Address Equipment	Place	4	864	618	1,482	6,912	562	552	8,026	9,508
	9. Telecom Cables	km	15.0	8,865	2,072	10,937	27,920	11,727	2,233	41,880	52,817
	Sub-total			19,208	20,421	39,629	239,469	33,338	19,154	291,961	331,590
	Indirect Cost					19,896				46,422	66,318
	Total					59,525				338,383	397,908

2. Electrical Facilities: 4) Signalling & Telecommunication (2)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case A-1, A-2 in 1990	1. Signals	km	7.0	4,355	7,650	12,005	53,059	9,829	4,244	67,132	79,137
	2. ATS Equipment	km	7.0	0	108	108	3,971	131	317	4,419	4,527
	3. CTC Equipment	Place	1	0	563	563	41,966	728	3,357	46,051	46,614
	4. Level Crossing Equipment	Place	1	0	113	113	1,851	146	148	2,145	2,258
	5. Telephone System	km	7.0	497	299	796	984	0	78	1,062	1,858
	6. Radio System	Lump sum		0	241	241	16,539	645	1,323	18,507	18,748
	7. Master Clock System	Place	5	1,102	592	1,694	2,111	208	168	2,487	4,181
	8. Public Address Equipment	Place	2	432	309	741	3,456	281	276	4,013	4,754
	9. Telecom Cables	km	7.0	4,102	1,118	5,220	13,102	5,146	1,048	19,296	24,516
	Sub-total			10,488	10,993	21,481	137,039	17,114	10,959	165,112	186,593
	Indirect Cost					11,196				26,122	37,318
	Total					32,677				191,234	223,911

2. Electrical Facilities: 4) Signalling & Telecommunication (3)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case A-1 in 1993	1. Signals	km	8.0	1,452	7,625	9,077	54,717	9,602	4,378	68,697	77,774
	2. ATS Equipment	km	8.0	0	148	148	5,308	179	425	5,912	6,060
	3. CTC Equipment	Place	3	0	175	175	14,287	224	1,143	15,654	15,829
	4. Level Crossing Equipment	Place	nil	0	0	0	0	0	0	0	0
	5. Telephone System	km	8.0	581	350	933	1,117	0	90	1,207	2,140
	6. Radio System	Lump sum		0	120	120	13,516	322	1,081	14,919	15,039
	7. Master Clock System	Place	7	1,490	797	2,287	2,703	270	217	3,190	5,477
	8. Public Address Equipment	Place	2	432	309	741	3,456	281	276	4,013	4,754
	9. Telecom Cables	km	8.0	4,763	954	5,717	14,818	6,581	1,185	22,584	28,301
	Sub-total			8,720	10,478	19,198	109,922	17,459	8,795	136,176	155,374
	Indirect Cost					9,323				21,751	31,074
	Total					28,521				157,927	186,448

2. Electrical Facilities: 4) Signalling & Telecommunication (4)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case A-2, C-2, in 1993	1. Signals	km	2.4	927	3,561	4,488	25,389	4,439	2,031	31,859	36,347
	2. ATS Equipment	km	2.4	0	69	69	2,524	83	201	2,808	2,877
	3. CTC Equipment	Place	2	0	119	119	9,967	151	797	10,915	11,034
	4. Level Crossing Equipment	Place	nil	0	0	0	0	0	0	0	0
	5. Telephone System	km	2.4	259	156	415	503	0	40	543	958
	6. Radio System	Lump sum		0	0	0	3,024	0	241	3,265	3,265
	7. Master Clock System	Place	3	648	343	991	987	184	78	1,169	2,160
	8. Public Address Equipment	Place	1	216	154	370	1,728	140	138	2,006	2,376
	9. Telecom Cables	km	2.4	2,041	307	2,348	4,777	2,542	382	7,701	10,049
	Sub-total			4,091	4,709	8,800	48,899	7,459	3,908	60,266	69,066
	Indirect Cost					4,144				9,669	13,813
	Total					12,944				69,935	82,879

2. Electrical Facilities: 5) Signalling & Telecommunication (5)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case A-2 in 1996	1. Signals	km	5.6	1,174	5,349	6,523	30,360	6,737	2,428	39,525	46,048
	2. ATS Equipment	km	5.6	0	93	93	3,388	112	271	3,771	3,864
	3. CTC Equipment	Place	1	0	56	56	4,320	73	345	4,738	4,794
	4. Level Crossing Equipment	Place	nil	0	0	0	0	0	0	0	0
	5. Telephone System	km	5.6	367	220	587	704	0	56	760	1,347
	6. Radio System	Lump sum		0	120	120	13,577	322	1,086	14,985	15,105
	7. Master Clock System	Place	4	842	454	1,296	1,716	166	137	2,019	3,315
	8. Public Address Equipment	Place	1	216	154	370	1,728	140	138	2,006	2,376
	9. Telecom Cables	km	5.6	2,722	647	3,369	10,041	4,039	803	14,883	18,252
	Sub-total			5,321	7,093	12,414	65,834	11,589	5,264	82,687	95,101
	Indirect Cost					5,706				13,314	19,020
	Total					18,120				96,001	114,121

2. Electrical Facilities: 4) Signalling & Telecommunication (6)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case B-1 in 1990	1. Signals	km	9.4	4,973	10,046	15,019	70,440	12,867	5,635	88,942	103,961
	2. ATS Equipment	km	9.4	0	170	170	6,193	206	495	6,894	7,064
	3. CTC Equipment	Place	3	0	682	682	51,933	879	4,154	56,966	57,648
	4. Level Crossing Equipment	Place	1	0	113	113	1,851	146	148	2,145	2,258
	5. Telephone System	km	9.4	713	429	1,142	1,398	0	111	1,509	2,651
	6. Radio System	Lump sum		0	241	241	17,712	645	1,416	19,773	20,014
	7. Master Clock System	Place	8	1,750	935	2,685	3,098	312	247	3,657	6,342
	8. Public Address Equipment	Place	3	648	463	1,111	5,184	421	414	6,019	7,130
	9. Telecom Cables	km	9.4	6,143	1,425	7,568	17,879	7,688	1,430	26,997	34,565
	Sub-total			14,227	14,504	28,731	175,688	23,164	14,050	212,902	241,633
	Indirect Cost					14,498				33,828	48,326
	Total					43,229				246,730	289,959

2. Electrical Facilities: 4) Signalling & Telecommunication (7)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case B-1 in 1993	1. Signals	km	5.6	834	5,229	6,063	37,336	6,564	2,987	46,887	52,950
	2. ATS Equipment	km	5.6	0	86	86	3,086	104	247	3,437	3,523
	3. CTC Equipment	Place	1	0	56	56	4,320	73	346	4,739	4,795
	4. Level Crossing Equipment	Place	nil	0	0	0	0	0	0	0	0
	5. Telephone System	km	5.6	367	220	587	703	0	57	760	1,347
	6. Radio System	Lump sum		0	120	120	12,343	322	988	13,653	13,773
	7. Master Clock System	Place	4	842	454	1,296	1,716	166	138	2,020	3,316
	8. Public Address Equipment	Place	1	216	155	371	1,728	141	138	2,007	2,378
	9. Telecom Cables	km	5.6	2,722	647	3,369	10,041	4,039	803	14,883	18,252
	Sub-total			4,981	6,967	11,948	71,273	11,409	5,704	88,386	100,334
	Indirect Cost					6,020				14,046	20,066
	Total					17,968				102,432	120,400

2. Electrical Facilities: 4) Signalling & Telecommunication (8)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case C-1, C-2 in 1990	1. Signals	km	5.9	1,359	6,285	7,644	46,665	8,083	3,733	58,481	66,125
	2. ATS Equipment	km	5.9	0	94	94	3,478	114	278	3,870	3,964
	3. CTC Equipment	Place	1	0	563	563	41,966	728	3,357	46,051	46,614
	4. Level Crossing Equipment	Place	nil	0	0	0	0	0	0	0	0
	5. Telephone System	km	5.9	454	273	727	895	0	71	966	1,693
	6. Radio System	Lump sum		0	120	120	9,442	322	755	10,519	10,639
	7. Master Clock System	Place	5	1,102	592	1,694	2,111	208	168	2,487	4,181
	8. Public Address Equipment	Place	2	432	309	741	3,456	281	276	4,013	4,754
	9. Telecom Cables	km	5.9	3,532	786	4,318	11,417	4,848	913	17,178	21,496
	Sub-total			6,879	9,022	15,901	119,430	14,584	9,551	143,565	159,466
	Indirect Cost					9,568				22,325	31,893
	Total					25,469				165,890	191,359

2. Electrical Facilities: 4) Signalling & Telecommunication (9)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case C-1 in 1993	1. Signals	km	9.1	4,448	8,990	13,438	61,111	11,348	4,889	77,348	90,786
	2. ATS Equipment	km	9.1	0	162	162	5,801	196	464	6,461	6,623
	3. CTC Equipment	Place	3	0	175	175	14,287	224	1,143	15,654	15,829
	4. Level Crossing Equipment	Place	1	0	113	113	1,851	146	148	2,145	2,258
	5. Telephone System	km	9.1	626	376	1,002	1,206	0	97	1,303	2,305
	6. Radio System	Lump sum		0	241	241	20,613	645	1,649	22,907	23,148
	7. Master Clock System	Place	7	1,490	797	2,287	2,703	270	217	3,190	5,477
	8. Public Address Equipment	Place	2	432	309	741	3,456	281	276	4,013	4,754
	9. Telecom Cables	km	9.1	5,333	1,286	6,619	16,503	6,879	1,320	24,702	31,321
	Sub-total			12,329	12,449	24,778	127,531	19,989	18,203	157,723	182,501
	Indirect Cost					10,950				25,550	34,500
	Total					35,728				183,273	219,001

2. Electrical Facilities: 4) Signalling & Telecommunication (10)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case C-2 in 1996	1. Signals	km	6.7	4,016	6,686	10,702	36,754	8,447	2,940	48,141	58,843
	2. ATS Equipment	km	6.7	0	106	106	3,882	129	310	4,321	4,427
	3. CTC Equipment	Place	1	0	56	56	4,320	73	345	4,738	4,794
	4. Level Crossing Equipment	Place	1	0	113	113	1,851	146	148	2,145	2,258
	5. Telephone System	km	6.7	367	220	587	704	0	56	760	1,347
	6. Radio System	Lump sum		0	241	241	20,057	645	1,604	22,306	22,547
	7. Master Clock System	Place	4	842	454	1,296	1,716	166	137	2,019	3,315
	8. Public Address Equipment	Place	1	216	154	370	1,728	140	138	2,006	2,376
	9. Telecom Cables	km	6.7	3,292	971	4,263	11,596	4,313	927	16,836	21,099
	Sub-total			8,733	9,001	17,734	82,608	14,059	6,605	103,272	121,006
	Indirect Cost					7,261				16,940	24,201
	Total					24,995				120,212	145,207

2. Electrical Facilities: 4) Signalling & Telecommunication (11)

(Unit: 1,000 Sucras)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case D-1 in 1990	1. Signals	km	8.3	1,977	8,681	10,658	64,046	11,121	5,123	80,290	90,948
	2. ATS Equipment	km	8.3	0	156	156	5,699	189	455	6,343	6,499
	3. CTC Equipment	Place	3	0	682	682	51,933	879	4,154	56,966	57,648
	4. Level Crossing Equipment	Place	nil	0	0	0	0	0	0	0	0
	5. Telephone System	km	8.3	713	429	1,142	1,398	0	111	1,509	2,651
	6. Radio System	Lump sum		0	120	120	12,466	322	997	13,785	13,905
	7. Master Clock System	Place	8	1,750	935	2,685	3,098	312	247	3,657	6,342
	8. Public Address Equipment	Place	3	648	463	1,111	5,184	421	414	6,019	7,130
	9. Telecom Cables	km	8.3	5,573	1,102	6,675	16,324	7,413	1,305	25,042	31,717
	Sub-total			10,661	12,568	23,229	160,148	20,657	12,806	193,611	216,840
	Indirect Cost					13,011				30,357	43,368
	Total					36,240				223,968	260,208

2. Electrical Facilities: 4) Signalling & Telecommunication (12)

(Unit: 1,000 Sucras)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case D-1 in 1993	1. Signals	km	6.7	3,830	6,594	10,424	43,730	8,310	3,499	55,539	65,963
	2. ATS Equipment	km	6.7	0	100	100	3,580	121	287	3,988	4,088
	3. CTC Equipment	Place	1	0	56	56	4,320	73	346	4,739	4,795
	4. Level Crossing Equipment	Place	1	0	113	113	1,851	146	348	2,145	2,258
	5. Telephone System	km	6.7	367	220	587	703	0	57	760	1,347
	6. Radio System	Lump sum		0	241	241	17,589	665	1,407	19,641	19,882
	7. Master Clock System	Place	4	842	454	1,296	1,716	166	138	2,020	3,316
	8. Public Address Equipment	Place	1	216	155	371	1,728	141	138	2,007	2,378
	9. Telecom Cables	km	6.7	3,292	970	4,262	11,596	4,314	928	16,838	21,100
	Sub-total			8,547	8,903	17,450	86,813	13,916	6,948	107,677	125,127
	Indirect Cost					7,508				17,517	25,025
	Total					24,958				125,194	150,152

2. Electrical Facilities: 4) Signalling & Telecommunication (13)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case-E in 1990	1. Signals	km	7.0	4,355	7,650	12,005	53,059	9,829	4,244	67,132	79,137
	2. ATS Equipment	km	7.0	0	108	108	3,971	131	317	4,419	4,527
	3. CTC Equipment	Place	2	0	619	619	46,286	801	3,702	50,789	51,408
	4. Level Crossing Equipment	Place	1	0	113	113	1,851	146	148	2,145	2,258
	5. Telephone System	km	7.0	492	299	796	984	0	78	1,062	1,858
	6. Radio System	Lump sum		0	241	241	17,157	645	1,372	19,174	19,415
	7. Master Clock System	Place	5	1,162	592	1,694	2,111	208	168	2,487	4,181
	8. Public Address Equipment	Place	2	432	309	741	3,456	281	276	4,013	4,754
	9. Telecom Cables	km	7.0	4,102	1,118	5,220	13,102	5,146	1,048	19,296	24,516
	Sub-total			10,488	11,049	21,537	141,977	17,187	11,353	170,517	192,054
	Indirect Cost					11,523				26,887	38,410
	Total					33,060				197,404	230,464

2. Electrical Facilities: 4) Signalling & Telecommunication (14)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case-F in 1990	1. Signals	km	9.4	4,973	10,046	15,019	70,440	12,867	5,635	88,942	103,861
	2. AIS Equipment	km	9.4	0	170	170	6,193	206	495	6,894	7,064
	3. CTC Equipment	Place	3	0	688	688	53,013	884	4,241	58,138	58,826
	4. Level Crossing Equipment	Place	1	0	113	113	1,851	146	148	2,145	2,258
	5. Telephone stem	km	9.4	713	429	1,142	1,398	0	111	1,509	2,651
	6. Radio System	Lump sum		0	241	241	18,946	645	1,515	21,106	21,347
	7. Master Clock System	Place	8	1,750	935	2,685	3,098	312	247	3,657	6,342
	8. Public Address Equipment	Place	3	648	463	1,111	5,184	421	414	6,019	7,130
	9. Telecom Cables	km	9.4	6,143	1,425	7,568	17,879	7,688	1,430	26,997	34,565
	Sub-total			14,227	14,510	28,737	178,002	23,169	14,236	215,407	244,144
	Indirect Cost					14,649				34,179	48,828
	Total					43,386				249,586	292,972

2. Electrical Facilities: 4) Signalling & Telecommunication (15)

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Case-G in 1990	1. Signals	km	8.3	1,977	8,681	10,658	64,046	11,121	5,123	80,290	90,948
	2. ATS Equipment	km	8.3	0	156	156	5,699	189	455	6,343	6,499
	3. CTC Equipment	Place	3	0	688	688	53,013	884	4,241	58,138	58,826
	4. Level Crossing Equipment	Place	nil	0	0	0	0	0	0	0	0
	5. Telephone System	km	8.3	713	429	1,142	1,398	0	111	1,509	2,651
	6. Radio System	Lump sum		0	120	120	12,466	322	997	13,785	13,905
	7. Master Clock System	Place	8	1,750	935	2,685	3,098	312	247	3,657	6,342
	8. Public Address Equipment	Place	3	648	463	1,111	5,184	421	414	6,019	7,130
	9. Telecom Cables	km	8.3	5,573	1,102	6,675	16,324	7,413	1,305	25,042	31,717
	Sub-total			10,661	12,574	23,235	161,228	20,662	12,893	194,783	218,018
	Indirect Cost					13,081				30,522	43,603
	Total					36,316				225,305	261,621

2. Electrical Facilities: 4) Signalling & Telecommunication (16) Increase of Equipment

(Unit: 1,000 Sucres)

Applicable Case	Description	Unit	Quantity	Local Currency			Foreign Currency				Grand Total
				Material	Labor	Total	Material	Labor	Instrument & Transport	Total	
Each Case in 2000 Except Case E,F,G	1. Rectifiers at No.2 & No.4 Substations	Set	2	1,604	510	2,114	88,869	624	7,109	96,602	98,716
	2. Power Distribution System			926	386	1,312	0	94	0	94	1,406
	3. Signalling System			494	1,120	1,614	9,374	1,381	789	12,044	13,658
	4. Telecommunication System			0	0	0	617	0	49	666	666
	Sub-total			3,024	2,016	5,040	99,360	2,099	7,947	109,406	114,446
	Indirect Cost					6,867				16,022	22,889
	Total					11,907				125,428	137,335

3. Rolling Stock

3. Rolling Stock

(Unit: 1,000 Sucre)

Item	Specification	Quantity	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
				Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
1. Rolling Stock (Unit Price) incl. indirect cost (A)	16 ^m x 2.5 ^m x 3.9 ^m With air-conditioner	1	Car	-	-	Transport 200	200	72,000	-	-	2,600 (Transport) 2,400 (Insurance) 200	74,600	74,800
2. Training for 30 ~ 70 cars													
1) Personnel Expense	Trainer (in Japan (in Guayaquil)	42 (18 24)	M/M	-	9,600 (Living expense etc.)	-	9,600	-	57,600	-	-	57,600	67,200
2) Others	Manual etc.	1	Lot									19,600	19,600
Total					9,600		9,600		57,600			77,200	86,800
Unit training Cost per car (Average) (B)					200		200		1,500			1,500	1,700
Unit Cost of Rolling Stock (incl. Training) (A + B)					200	200	400	72,000	1,500		2,600	76,100	76,500

4. Land Cost

(1) LAND COST BY TEST CASE

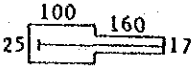
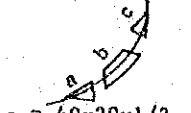
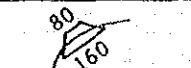
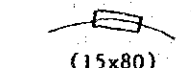

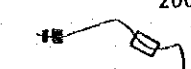
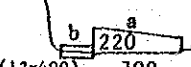
(Unit: 1,000 Sucres)

Case	Year	Required Section	Land Acquisition	Compensation	Total
Basic Case-1	1990	$\Sigma (1 \sim 9)$	145,460	117,000	262,460
Case A-1	1990	$\Sigma (2 \sim 7) + 9$	127,260	87,000	214,260
	1993	1 + 8	18,200	30,000	48,200
Case A-2	1990	$\Sigma (2 \sim 7) + 9$	127,260	87,000	214,260
	1993	-	-	-	-
	1996	1 + 8	18,200	30,000	48,200
Case B-1	1990	$\Sigma (2 \sim 7) + 9$	127,260	87,000	214,260
	1993	1 + 8	18,200	30,000	48,200
Case C-1	1990	1 + 8 + 10	223,800	1,030,000	1,253,800
	1993	$\Sigma (2 \sim 6)$	88,620	87,000	175,620
Case C-2	1990	1 + 8 + 10	223,800	1,030,000	1,253,800
	1993	-	-	-	-
	1996	$\Sigma (2 \sim 6)$	88,620	87,000	175,620
Case D-1	1990	1 + 8 + 10	223,800	1,030,000	1,253,800
	1993	$\Sigma (2 \sim 6)$	88,620	87,000	175,620
Case E	1990	$\Sigma (2 \sim 7) + 9$	127,260	87,000	214,260
Case F	1990	ditto	127,260	87,000	214,260
Case G	1990	1 + 8 + 10	223,800	1,030,000	1,253,800

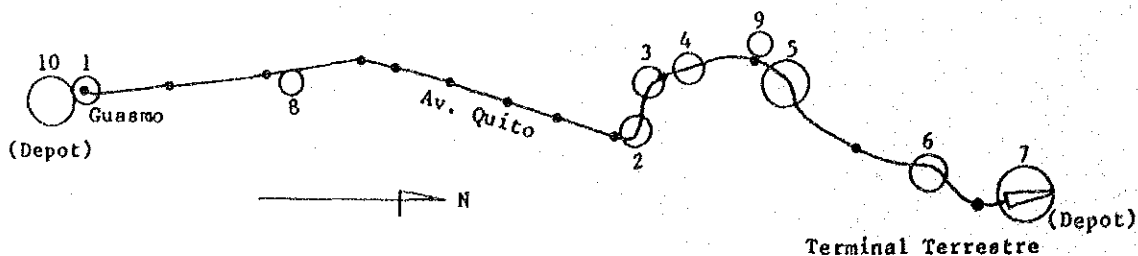
Note. Refer to 'Land Cost by Section' shown in next page

(2) LAND COST BY SECTION

(Unit of cost: thousand sucres)

Section		Land Acquisition			Compensation		
No.	Layout	Area (m ²)	Unit Cost	Cost	Area (m ²)	Unit Cost	Cost
1	$(100 \times 25 + 160 \times 17)$ 	5,200	2	10,400	3,000	10 (bamboo) (mix)	30,000
2	 $a = 40 \times 20 \times 1/2$ $b = (50 + 30) \times 17 \times 1/2$ $c = 40 \times 20 \times 1/2$	1,900	7.8	14,820	800	15 (mix)	12,000
3	 $(160 + 80) \times 20 \times 1/2$	2,400	6.5	15,600	800	25 (concrete)	20,000
4	 (15×80)	1,200	6.5	7,800	500	25 (concrete)	12,500
5	 (450×17)	7,700	5	38,500	600	25 (concrete)	15,000
6	 200×17 Compensation 1100 m ²	3,400	3.5	11,900	1,100	25 (concrete)	27,500
7 (Depot) in north	 (12×400) 700 $a = (220 + 60) \times 700 \times 1/2$ $b = (12 \times 400)$	102,800	0.3	30,840	0	-	0
8 (Substation)	S/S No. 2 (3K400M) (30x40)	1,200	6.5	7,800	0	-	0
9 (Substation)	S/S No. 4 (10K500M) (30x40)	1,200	6.5	7,800	0	-	0
10 (Depot) in south	Equivalent to No. 7	102,800	2	205,600	100,000	10 (bamboo)	1,000,000

Location of Land Acquisition



5. Engineering Services

(1) Engineering Services (Summary)

(Unit: 1000 Sucres in 1985 prices)

CASE	(Year)	Quantity (km)	Unit Cost (Per km)		Cost		
			L.C	F.C	L.C	F.C	Total
Basic Case-1	1990	14.7	25,000	48,860	367,480	718,200	1,085,680
Case A-1	1990	6.7	34,740	64,320	232,760	430,920	663,680
	1993	8.0	30,300	57,880	242,400	463,040	705,440
Case A-2	1990	6.7	34,740	64,320	232,760	430,920	663,680
	1993	2.4	"	"	83,380	154,370	237,750
	1996	5.6	"	"	194,540	360,190	554,730
Case B-1	1990	9.1	30,300	57,880	275,720	526,680	802,400
	1993	5.6	34,740	64,320	194,540	360,190	554,730
Case C-1	1990	5.6	34,740	64,320	194,540	360,190	554,730
	1993	9.1	30,300	57,880	275,720	526,680	802,400
Case C-2	1990	5.6	34,740	64,320	194,540	360,190	554,730
	1993	2.4	"	"	83,380	154,370	237,750
	1996	6.7	"	"	232,760	430,920	663,680
Case D-1	1990	8.0	30,300	57,880	242,400	463,040	705,440
	1993	6.7	34,740	64,320	232,760	430,920	663,680
Case E	1990	6.7	34,740	64,320	232,760	430,920	663,680
Case F	1990	9.1	30,300	57,880	275,720	526,680	802,400
Case G	1990	8.0	30,300	57,880	242,400	463,040	705,440

(2) Engineering Services: Unit Cost (1)

Unit: Thousand Sucres

Exchange Rate: 1 US\$ = 120 sucres = 210 Yens

Item	Specification	Quantity	Unit	Local Currency Portion		Foreign Currency Portion	Total
1. BASIC CASE (in 1990, 14.7 km)							
1) Survey & Design	Foreign Eng.	240	M/M	(Living Expense 160 M/M)	54,400	273,600	328,000
	Local Staff	180	"		30,600	0	30,600
	Others	12	M	(Office, Equipment, transportation etc.)	10,320	13,680	24,000
	Sub-total				95,320	287,280	382,600
2) Supervision	Foreign Eng.	360	M/M	(Living expense 360 M/M)	122,400	410,400	532,800
	Local Staff	720	"		122,400	0	122,400
	Others	24	M	(Office, equipment, transportation etc.)	27,360	20,520	47,880
	Sub-total				272,160	430,920	703,080
	Total (T)				367,480	718,200	1,085,680
Unit cost	(T)/14.7	1	km		25,000	48,860	73,860

(3) Engineering Services: Unit Cost (2)

Unit: Thousand Sucres

Exchange Rate: 1 US\$ = 120 sucres = 210 Yens

Item	Specification	Quantity	Unit	Local Currency Portion	Foreign Currency Portion	Total
2. CASE A-1 (in 1990, 6.7 km)						
1) Survey & Design	Foreign Eng.	140	M/M	(Living expense 100 M/M) 34,000	159,600	193,600
	Local Staff	110	"	18,700	0	18,700
	Others	12	M	(Office, equipment, transportation etc.) 8,880	7,980	16,860
	Sub-total			61,580	167,580	229,160
2) Supervision	Foreign Eng.	220	M/M	(Living expense 220 M/M) 74,800	250,800	325,600
	Local staff	430	"	73,100	0	73,100
	Others	24	M	(Office, equipment, transportation etc.) 23,280	12,540	35,820
	Sub-total			171,180	263,340	434,520
Total (T)				232,760	430,920	663,680
Unit Cost	(T)/6.7	1	km	34,740	64,320	99,060

Applicable

Case B-1 (in 1993, 5.6 km) Case C-2 (in 1990, 5.6 km)
Case A-2 (in 1990, 6.7 km) Case C-2 (in 1996, 6.7 km)
Case A-2 (in 1993, 2.4 km) Case D-1 (in 1993, 6.7 km)
Case A-2 (in 1996, 5.6 km) Case E (in 1990, 5.6 km)
Case C-1 (in 1990, 5.6 km)
Case C-2 (in 1993, 2.4 km)

(4) Engineering Services: Unit Cost (3)

Unit: Thousand Sucres

Exchange Rate: 1 US\$ = 120 sucres = 210 Yens

Item	Specification	Quantity	Unit	Local Currency Portion	Foreign Currency Portion	Total
3. CASE B-1 (in 1990, 9.1 km)						
1) Survey & Design	Foreign Eng.	180	M/M	(Living expense 120 M/M) 40,800	205,200	246,000
	Local Staff	130	"	22,100	0	22,100
	Others	12	M	(Office, equipment, transportation etc.) 9,600	10,260	19,860
	Sub-total			72,500	215,460	287,960
2) Supervision	Foreign Eng.	260	M/M	(Living expense 260 M/M) 88,400	296,400	384,800
	Local Staff	530	"	90,100	0	90,100
	Others	24	M	(Office, equipment, transportation etc.) 24,720	14,820	39,540
	Sub-total			203,220	311,220	514,440
Total (T)				275,720	526,680	802,400
Unit Cost	(T)/9.1	1	km	30,300	57,880	88,180

Applicable cost

Case C-1 (in 1993, 9.1 km)
Case A-1 (in 1993, 8.0 km)
Case D-1 (in 1990, 8.0 km)
Case F (in 1990, 8.0 km)
Case G (in 1990, 8.0 km)

6. Unit Cost of Civil Work

6. Unit Cost of Civil Work

(Unit: 1,000 Sucres)

Item	Specification	Quantity	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
				Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
Type A (L = 36 m)													
Concrete	240 kg/cm ²	187	m ³	1,433	110	0	1,543	484	0	207	79	770	2,313
Form		738	m ²	320	887	0	1,207	322	0	859	54	1,235	2,442
Reinforced	SD 30	34	m ³	1,850	549	0	2,399	0	0	512	0	512	2,911
Concrete Pile	L=25 ^m , ϕ 0.5 ^m	16	nos	1	27	4,880	4,908	0	0	36	0	36	4,944
Excavation		115	m ³	31	19	0	50	0	0	93	0	93	143
Total				3,635	1,592	4,880	10,107	806	0	1,707	133	2,646	12,753
Unit Cost		100	m	10,100	4,420	13,560	28,080	2,240	0	4,740	370	7,350	35,430
Type B (L = 36 m)													
Concrete	240 kg/cm ²	172	m ³	1,317	101	0	1,418	488	0	156	83	727	2,145
Form		820	m ²	356	1,018	0	1,374	314	0	896	52	1,262	2,636
Reinforced		31	t	1,701	505	0	2,206	0	0	373	0	373	2,579
Pile	L=25 ^m ϕ =0.6 ^m	8	nos	1	17	3,050	3,068	0	0	16	0	16	3,084
Excavation		266	m ³	72	46	0	118	0	0	153	0	153	271
Total				3,447	1,687	3,050	8,184	802	0	1,594	135	2,531	10,715
Unit Cost		100	m	9,580	4,690	8,470	22,740	2,230	0	4,430	370	7,030	29,770

6. Unit Cost: Girder A L = 20^m (2 Line), Girder B L = 25^m (2 Line)

(Unit: 1,000 Sucres)

6. Unit Cost: Girder A L = 20 (2 Line), Girder B L = 25 (2 Line)													
Item	Specification	Quantity	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
				Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
PC Girder (A)													
Girder		4	lot	971	553	0	1,524	0	0	3,113	0	3,113	10,433
Erection		156	ton	151	343	0	494	8	906	2,247	1	3,162	
Others		1	lot	768	458	0	1,226	659	0	139	16	914	
Total				1,890	1,354	0	3,244	667	906	5,499	117	7,189	
Unit Cost		100	m	9,450	6,770	0	16,220	3,335	4,530	27,495	585	35,945	
Pier													
Concrete		44	m ³	617	178	0	795	11	0	162	2	175	2,951
Pile		1	lot	1	11	1,906	1,918	0	0	6	0	6	
Others		1	lot	19	12	0	31	0	0	26	0	26	
Total				637	201	1,906	2,744	11	0	194	2	207	
Unit Cost		100	m	3,185	1,005	9,530	13,720	55	0	970	10	1,035	
Grand Unit Cost		100	m	12,635	7,775	9,530	29,940	3,390	4,530	28,465	595	36,980	66,920
PC Girder (B)													
Girder		4	lot	1,294	743	0	2,037	0	0	3,596	0	3,596	12,355
Erection		206	ton	151	390	0	541	8	982	2,674	1	3,615	
Others		1	lot	991	504	0	1,495	792	0	139	140	1,071	
Total				2,436	1,637	0	4,073	800	982	6,359	141	8,282	
Unit Cost		100	m	9,744	6,548	0	16,292	3,200	3,928	25,436	564	33,128	
Pier													
Concrete		47	m ³	653	187	0	840	12	0	170	2	184	3,585
Pile		7	lot	1	14	2,478	2,493	0	0	8	0	8	
Others		1	lot	20	13	0	33	0	0	27	0	27	
Total				674	214	2,478	3,366	12	0	205	2	219	
Unit Cost		100	m	2,696	856	9,912	13,464	48	0	820	8	876	
Grand Unit Cost		100	m	12,440	7,404	9,912	29,756	3,248	3,928	26,256	572	34,004	63,760

6. Unit Cost: Girder C L = 30^m more (2 Line)

(Unit: 1,000 Sucres)

Item	Specification	Quantity	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
				Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
PC Girder (C)													
Girder		4	lot	1,617	933	0	2,550	0	0	4,078	0	4,078	
Erection		255	ton	151	436	0	587	8	1,058	3,000	1	4,067	
Others		1	lot	1,063	550	0	1,613	924	0	139	163	1,226	
Total				2,831	1,919	0	4,750	932	1,058	7,217	164	9,371	14,121
Unit Cost				9,437	6,397	0	15,834	3,107	3,527	24,057	547	31,238	
Pier													
Concrete		49	m ³	689	195	0	884	12	0	178	2	192	
Pile		8	lot	1	17	3,050	3,068	0	0	10	0	10	
Others		1	lot	20	13	0	33	0	0	28	0	28	
Total				710	225	3,050	3,985	12	0	216	2	230	4,215
Unit Cost		100	m	2,367	750	10,167	13,284	40	0	720	7	767	
Grand Unit Cost		100	m	11,894	7,147	10,167	29,118	3,147	3,527	24,777	554	32,005	61,123

6. Unit Cost: Earth Work

(Unit: 1,000 Sucres)

Item	Specification	Quantity	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
				Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
Embankment Type													
Bank		280	m	1,320	61	0	1,381	0	0	311	0	311	1,692
Land grading		280	m	7	29	0	36	0	0	9	0	9	45
Wall (0.5 ~ 2.5 ^m)		280	m	14,230	2,857	42,646	59,733	0	0	340	0	340	60,073
Other		280	m	22	212	214	448	1,380	0	0	250	1,630	2,078
Total				15,579	3,159	42,860	61,598	1,380	0	660	250	2,290	63,888
Ground Type													
Bank		880	m	4,046	185	0	4,231	0	0	1,668	0	1,668	5,899
Land grading		880	m	16	103	0	119	0	0	55	0	55	174
Other		880	m	70	643	674	1,387	4,340	0	0	720	5,060	6,447
Total				9,132	931	674	5,737	4,340	0	1,723	720	6,783	12,520

6. Unit Cost: Depot

(Unit: 1,000 Sucres)

Item	Specification	Quantity	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
				Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
Earth Work													
Site Clearance	Bank (0.30 ^m)	94,000	m	18,190	2,049	0	20,239	0	0	4,617	0	4,617	24,856
Pavement		8,000	m	12,720	1,040	3,760	17,520	0	0	0	0	0	17,520
Drain	4=0.40 ^m , L=1,750 ^m U type L=800 ^m	1	set	7,320	2,438	0	9,758	0	0	0	0	0	9,758
Fence		1,720	m	69	628	658	1,355	4,255	0	1,870	750	6,875	8,230
Total				38,299	6,155	4,418	48,872	4,255	0	6,487	750	11,492	60,364
Building Work													
Main Office	RC 3F	3,240	m	57,024	49,896	21,280	128,200	0	0	0	0	0	128,200
Work shop	SC 1F Inspection Pit	8,190	m	73,326	64,160	91,658	229,144	92,642	0	16,347	18,637	127,626	356,770
Main Stor, Single Cabin, Control Room	RC 1F RC 2F	1,560	m	15,575	13,628	19,469	48,672	0	0	0	0	0	48,672
Other Building	SC 1F	3,720	m	23,152	20,258	28,940	72,350	36,325	0	6,415	7,308	50,048	122,398
Total				169,077	147,942	211,347	528,366	128,967	0	22,762	25,945	177,674	706,040

6. Unit Cost: Main Track (Double), Depot Track (Single)

(Unit: 1,000 Sucres)

Item	Specification	Quantity	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
				Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
Track (Double)													
Rail	50 kg/m	100	m	0	0	250	250	1,260	0	0	218	1,478	1,728
Sleeper	wooden	328	piece	132	0	52	184	0	0	0	0	0	184
Ballast		250	m ³	225	0	57	282	0	0	0	0	0	282
Accessories		100	m	0	0	0	0	426	0	0	74	500	500
Laying		100	m	265	2,430	730	3,425	0	0	240	0	240	3,665
Total		100	m	622	2,430	1,089	4,141	1,686	0	240	292	2,218	6,359
Turnout													
Scissors crossover	8# (50 kg)	1	set	0	0	810	810	8,170	0	0	1,230	9,400	10,210
Sleeper	wooden	260	piece	63	0	25	88	0	0	0	0	0	88
Ballast		180	m ³	162	0	40	202	0	0	0	0	0	202
Accessories		1	set	0	0	0	0	2,150	0	0	320	2,470	2,470
Laying		1	m	180	1,810	540	2,530	0	0	50	0	50	2,580
Total		1	set	405	1,810	1,415	3,630	10,320	0	50	1,550	11,920	15,550
Track (Single)													
Rail	40 kg/m	100	m	0	0	100	100	510	0	0	77	587	687
Sleeper	wooden	136	piece	55	0	22	77	0	0	0	0	0	77
Ballast		160	m	144	0	36	180	0	0	0	0	0	180
Accessories		100	m	0	0	0	0	40	0	0	6	46	46
Laying		100	m	90	816	245	1,151	0	0	83	0	83	1,234
Total		100	m	289	816	403	1,508	550	0	83	83	716	2,224
Turnout													
Turnout	6# (40 kg)	1	set	0	0	130	130	1,260	0	0	190	1,450	1,580
Sleeper	wooden	50	piece	13	0	6	19	0	0	0	0	0	19
Ballast		50	m	27	0	7	34	0	0	0	0	0	34
Accessories		1		0	0	0	0	390	0	0	60	450	450
Laying		1		30	310	95	435	0	0	10	0	0	445
Total		1	set	70	310	238	618	1,650	0	10	250	1,910	2,528

6. Unit Cost: Station

(Unit: 1,000 Sucres)

Item	Specification	Quantity	Unit	Local Currency Portion				Foreign Currency Portion					Grand Total
				Material	Labor	Equipment	Total	Material	Labor	Equipment	Transport & Insurance	Total	
Main													
Foundation works	No. 5, 8, 10	1	lot	4,025	1,094	14,289	19,318	0	0	427	0	427	19,745
Steel works	Pile, footing	908	t	1,367	1,610	0	2,977	126,243	2,652	3,093	22,278	154,266	157,243
Other works		1	lot	16,454	8,564	8,369	33,387	6,048	535	741	1,067	8,391	41,778
Total				21,846	11,178	22,658	55,682	132,291	3,187	4,261	23,345	163,084	218,766
Standard													
Foundation works	No. 2, 3, 4, 6, 7, 9	1	lot	2,374	650	12,502	15,526	0	0	273	0	273	15,799
Steel works		564	t	1,174	1,144	0	2,318	78,348	1,791	2,299	13,826	96,264	98,582
Other works		-	lot	12,284	6,726	3,430	22,440	4,555	37	274	804	5,670	28,110
Total				15,832	8,520	15,932	40,284	82,903	1,828	2,846	14,630	102,207	142,491
No. 12 St													
Foundation	Pile, footing	1	lot	5,576	4,173	32,230	41,979	0	0	761	0	761	42,740
Concrete		1	lot	31,870	23,746	0	55,616	13,756	0	2,675	2,428	18,859	71,616
Other works		1	lot	2,124	1,084	7,260	10,468	8,395	0	471	1,481	10,347	20,815
Over bridge		1	lot	2,419	968	5,775	9,162	8,547	251	516	1,508	10,822	19,984
Total				41,989	29,971	45,265	117,225	30,698	251	4,423	5,417	40,789	158,014
No. 11 St													
Foundation	Pile, footing	1	lot	4,320	3,230	21,080	28,630	0	0	251	0	251	28,881
Concrete		1	lot	20,778	15,503	0	36,281	7,290	0	882	1,286	9,458	45,739
Other works		1	lot	862	307	4,590	5,759	4,450	0	157	784	5,391	11,150
Total				25,960	19,040	25,670	70,670	11,740	0	1,290	2,070	15,100	85,770
No. 1 St													
Foundation	Pile, footing	1	lot	5,018	3,750	25,784	34,552	0	0	362	0	362	34,914
Concrete		1	lot	24,140	17,986	0	42,126	8,017	0	1,273	1,416	10,706	52,832
Other works		1	lot	1,002	354	5,616	6,972	4,893	0	225	864	5,982	12,954
Total				30,160	22,090	31,400	83,650	12,910	0	1,860	2,280	17,050	100,700

Appendix 1-10 NUMBER OF CREW MEMBERS AND PERSONNEL EXPENSE

APPENDIX: NUMBER OF CREW MEMBERS (1)

	Case	Basic case				
	Year	1990	1993	1996	2000	2010-
a. Train hours (hr)		174.0	193.4	207.9	227.2	280.4
b. Travel time		29 min				
c. Rate of transit time = 3min tran't		$3/29=0.1$				
d. Average driving hours per driver's shift		$6 \times 0.9 = 5.4 \text{ hr}$				
e. Required No. of drivers [a/d]		33	36	39	42	52
f. Reserved drivers [e x 0.6]		20	22	24	26	32
g. Total drivers [e+f]		53	58	63	68	84
h. Total crew members [g x 2]		106	116	126	136	168

Note: 1. Total crew members in column 'h' includes the same number of conductors as that of drivers in column 'g'.

APPENDIX: NUMBER OF CREW MEMBERS (2)

	Case	A-1 A-2	A-2	B-1	C-1 C-2	C-2	D-1
	Year	1990	1993	1990	1990	1993	1990
a. Train hours (hr)		65.0	105.0	90.0	* 55.0 33.0	93.4	88.0
b. Travel time		13	18	18	11	16	16
c. Rate of transit time = 3min tran't		3/13 =0.3	3/18 =0.2	3/18 =0.2	3/11 =0.3	3/16 =0.2	3/16 =0.2
d. Average driving hours per driver's shift		6 x0.7 4.2	6 x0.8 4.8	4.8	4.2	4.8	4.8
e. Required No. of drivers [a/d]		16	22	19	* 13 8	20	19
f. Reserved drivers [e x0.6]		10	14	12	* 8 5	12	12
g. Total drivers [e+f]		26	36	31	* 21 13	32	31
h. Total crew members [g x2]		52	72	62	* 42 26	64	62

- Note: 1. Figures in 1990 of 'Case C-1, C-2' marked with '*' is a reference of the assumption of 300 trains per day with 3-car trainset.
2. Total crew members in column 'h' includes the same number of conductors as that of drivers in column 'g'.

APPENDIX: NUMBER OF CREW MEMBERS (3)

	Case E			
	1990	1993	1996, 2000	2010-
a. Train hours (hr)	65.0	71.5	75.9	86.7
b. Travel time	13 min			
c. Rate of transit time(3 min tran't)	$3/13=0.3$			
d. Average driving hours per driver's shift	$6 \times 0.7 = 4.2 \text{ hr}$			
e. Required No. of drivers [a/d]	16	18	19	21
f. Reserved drivers [e x 0.6]	10	11	12	13
g. Total drivers [e+f]	26	29	31	34
h. Total crew members [g x 2]	52	58	62	68

	Case F				
	1990	1993	1996	2000	2010-
a. Train hours (hr)	90.0	105.0	108.0	114.0	135.0
b. Travel time	18 min				
c. Rate of transit time(3 min tran't)	$3/18=0.2$				
d. Average driving hours per driver's shift	$6 \times 0.8 = 4.8 \text{ hr}$				
e. Required No. of drivers [a/d]	19	22	23	24	29
f. Reserved drivers [e x 0.6]	12	14	14	15	18
g. Total drivers [e+f]	31	36	37	39	47
h. Total crew members [g x 2]	62	72	74	78	94

APPENDIX: NUMBER OF CREW MEMBERS (4)

	Case G		
	1990	1993,1996,2000	2010-
a. Train hours (hr)	88.0	93.4	106.7
b. Travel time			16 min
c. Rate of transit time(3 min tran't)			3/16=0.2
d. Average driving hours per driver's shift			6 x 0.8 = 4.8 hr
e. Required No. of drivers [a/d]	19	20	23
f. Reserved drivers [e x0.6]	12	12	14
g. Total drivers [e+f]	31	32	37
h. Total crew members [g x2]	62	64	74

APPENDIX: STATION STAFF BY RANKING

Case A-1, A-2 : 1990

Case C-1, C-2 : 1990

Case E : 1990-

	Top Class Officers	Senior Staff	Middle Class Staff	Junior Staff
Salary (Sr/month)	81,000	42,000	29,000	24,000
<FOR Case of 2 Main and 3 Small stations>				
Station		[2]	[27]	[91]
Main Stat'n		2	8	18
Small Stat'n			9	39
Reserved staff			10	34

Case A-2, C-2 : 1993

Case B-1, D-1 : 1990

Case F, G : 1990-

<FOR Case of 3 Main and 5 Small stations>				
Station		[3]	[43]	[147]
Main Stat'n		3	12	27
Small Stat'n			15	65
Reserved staff			16	55

APPENDIX: PERSONNEL EXPENSE (1)

Basic Case : 1990

	Top Class Officers	Senior Staff	Middle Class Staff	Junior Staff
	Managers, Ins. Eng'r, Auditor	Sect. Chief, Stationmas'r	Ass'tmaster, Office members, Secretary	Field members, Office guards
Salary	Sr/m'th 81,000	42,000	29,000	24,000
Office	[10]	[12]	[47]	[9]
Manager's Room	6		1	
Admin'n Dept.	1	3	11	9
Transp'n Dept.	1	3	16	
Roll'g Stock Dept.	1	3	8	
Civil & Elect'l Dept.	1	3	11	
Station		[4]	[64]	[224]
Main Stat'n		4	16	36
Small Stat'n			24	104
Reserved staff			24	84
Railcar Depot Operation			[7]	[172]
Maintenance			6	10
Crew =In-depot			1	51
Crew =Line				5
Civil Main'ce Depot			[1]	[21]
Electrical Main'ce Depot			[1]	[21]
TOTAL				
Personnel	[10]	[16]	[120]	[447]
Expenditure (1000 Sucre)				
Monthly	810	672	3,480	10,728
Annual	9,720	8,064	41,760	128,736
Annual GRAND TOTAL	(x 1000 Sr) 188,280			

APPENDIX: PERSONNEL EXPENSE (2)

Basic Case : 1993

	Top Class Officers	Senior Staff	Middle Class Staff	Junior Staff
Salary (Sr/month)	81,000	42,000	29,000	24,000
Personnel Expenditure (1000 Sucre)	[10]	[16]	[120]	[457]
Monthly	810	672	3,480	10,968
Annual	9,720	8,064	41,760	131,616
Annual GRAND TOTAL = 191,160 (X 1000 Sucre)				

Basic Case : 1996

Personnel Expenditure (1000 Sucre)	[10]	[16]	[120]	[467]
Monthly	810	672	3,480	11,208
Annual	9,720	8,064	41,760	134,496
Annual GRAND TOTAL = 194,040 (X 1000 Sucre)				

Basic Case : 2000

Personnel Expenditure (1000 Sucre)	[10]	[16]	[120]	[477]
Monthly	810	672	3,480	11,448
Annual	9,720	8,064	41,760	137,376
Annual GRAND TOTAL = 196,920 (X 1000 Sucre)				

Basic Case : 2010~

Personnel Expenditure (1000 Sucre)	[10]	[16]	[120]	[509]
Monthly	810	672	3,480	12,216
Annual	9,720	8,064	41,760	146,592
Annual GRAND TOTAL = 206,136 (X 1000 Sucre)				

Note: In 'Basic Case', only the number of crew members for line services differs by year.

APPENDIX: PERSONNEL EXPENSE (3)

Case A-1, A-2 : 1990

Case E : 1990

	Top Class Officers	Senior Staff	Middle Class Staff	Junior Staff
Salary	Sr/m'th 81,000	42,000	29,000	24,000
Station		2	27	91
Railcar Depot			7	118
Others	10	12	49	51
TOTAL STAFF	[10]	[14]	[83]	[260]
Expenditure (1000 Scur)				
Monthly	810	588	2,407	6,240
Annual	9,720	7,056	28,884	74,880
Annual GRAND TOTAL = 120,540 (X 1000 Scur)				

Case A-2 : 1993

Case F : 1993

Station		3	43	147
Railcar Depot			7	138
Others	10	12	49	51
TOTAL STAFF	[10]	[15]	[99]	[336]
Expenditure (1000 Scur)				
Monthly	810	630	2,871	8,064
Annual	9,720	7,560	34,452	96,768
Annual GRAND TOTAL = 148,500 (X 1000 Scur)				

Case B-1, D-1 : 1990

Case F, G : 1990

Station		3	43	147
Railcar Depot			7	128
Others	10	12	49	51
TOTAL STAFF	[10]	[15]	[99]	[326]
Expenditure (1000 Scur)				
Monthly	810	630	2,871	7,824
Annual	9,720	7,560	34,452	93,888
Annual GRAND TOTAL = 145,620 (X 1000 Scur)				

APPENDIX: PERSONNEL EXPENSE (4)

Case C-1,C-2 : 1990

	Top Class Officers	Senior Staff	Middle Class Staff	Junior Staff
Salary (Sr/month)	81,000	42,000	29,000	24,000
Station		2	27	91
Railcar Depot			7	92
Others	10	12	49	51
TOTAL STAFF	[10]	[14]	[83]	[234]
Expenditure (1000 Sucre)				
Monthly	810	588	2,407	5,616
Annual	9,720	7,056	28,884	67,392
Annual GRAND TOTAL = 113,052 (X 1000 Scur)				

Case C-2 : 1993

Case G : 1993,1996,2000

Station		3	43	147
Railcar Depot			7	130
Others	10	12	49	51
TOTAL STAFF	[10]	[15]	[99]	[328]
Expenditure (1000 Sucre)				
Monthly	810	630	2,871	7,872
Annual	9,720	7,560	34,452	94,464
Annual GRAND TOTAL = 146,196 (X 1000 Scur)				

Case E : 1993

Station		2	27	91
Railcar Depot			7	124
Others	10	12	49	51
TOTAL STAFF	[10]	[14]	[83]	[266]
Expenditure (1000 Sucre)				
Monthly	810	588	2,407	6,384
Annual	9,720	7,056	28,884	76,608
Annual GRAND TOTAL = 122,268 (X 1000 Scur)				

APPENDIX: PERSONNEL EXPENSE (5)

Case E : 1996,2000

	Top Class Officers	Senior Staff	Middle Class Staff	Junior Staff
Salary (Sr/month)	81,000	42,000	29,000	24,000
Station		2	27	91
Railcar Depot			7	128
Others	10	12	49	51
TOTAL STAFF	[10]	[14]	[83]	[270]
Expenditure (1000 Scur)				
Monthly	810	588	2,407	6,480
Annual	9,720	7,056	28,884	77,760
Annual GRAND TOTAL = 123,420 (X 1000 Scur)				

Case E : 2010-

Station		2	27	91
Railcar Depot			7	134
Others	10	12	49	51
TOTAL STAFF	[10]	[14]	[83]	[276]
Expenditure (1000 Scur)				
Monthly	810	588	2,407	6,624
Annual	9,720	7,056	28,884	79,488
Annual GRAND TOTAL = 125,148 (X 1000 Scur)				

Case F : 1996

Case G : 2010-

Station		3	43	147
Railcar Depot			7	140
Others	10	12	49	51
TOTAL STAFF	[10]	[15]	[99]	[338]
Expenditure (1000 Scur)				
Monthly	810	630	2,871	8,112
Annual	9,720	7,560	34,452	97,344
Annual GRAND TOTAL = 149,076 (X 1000 Scur)				

APPENDIX: PERSONNEL EXPENSE (6)

Case F : 2000

	Top Class Officers	Senior Staff	Middle Class Staff	Junior Staff
Salary (Sr/month)	81,000	42,000	29,000	24,000
Station		3	43	147
Railcar Depot			7	144
Others	10	12	49	51
TOTAL STAFF	[10]	[15]	[99]	[342]
Expenditure (1000 Sucr)				
Monthly	810	630	2,871	8,208
Annual	9,720	7,560	34,452	98,496
Annual GRAND TOTAL = 150,228 (X 1000 Scur)				

Case F : 2010-

Station		3	43	147
Railcar Depot			7	160
Others	10	12	49	51
TOTAL STAFF	[10]	[15]	[99]	[358]
Expenditure (1000 Sucr)				
Monthly	810	630	2,871	8,592
Annual	9,720	7,560	34,452	103,104
Annual GRAND TOTAL = 154,836 (X 1000 Scur)				

Appendix 1-11. DETAILS OF MAINTENANCE COST

APPENDIX: MAINTENANCE COST OF ROLLING STOCK

*Unit cost of railcar maintenance 1,900,000 Yen/car/year =1,086,000 Sucre/car/year					
	Basic case				
	1990	1993	1996	2000	2010-
a. Nos. of cars required	70	80	100	105	135
b. Annual cost (1000 Sr)	76,020	86,880	108,600	114,030	146,610

Case & Year	Number of cars required	Annual cost of maintenance (1000 Sr)
C-1, C-2 1990	20	21,720
A-1, A-2, E 1990	30	32,580
E 1993, 1996, 2000	35	38,010
B-1 1990 C-2 1993 D-1 1990 E 2010- F 1990 G 1990, 1993, 1996, 2000	40	43,440
A-2, F 1993	45	48,870
F 1996, 2000 G 2010-	50	54,300
F 2010-	75	81,450

Note: 1. Unit cost of railcar maintenance is based on the statistics of seven major private railways in Tokyo.

2. Conversion rate of currency is 1.75 Yen/Sucre.

APPENDIX: TOTAL MAINTENANCE COST (1)

Basic case (1000 Sr)

	1990	1993	1996	2000	2010-
Rolling stock	76,020	86,880	108,600	114,030	146,610
Track	52,733	58,591	62,987	68,845	85,176
Electrical facilities	48,590	53,972	58,021	63,428	78,468
Other facilities	10,641	11,967	13,776	14,778	18,615
TOTAL	187,984	211,410	243,384	261,081	328,869

Note: Figures in the column 'Other facilities' is the multiplication by 0.06 of the total of maintenance of rolling stock, track and electrical facilities. This rate of multiplication is from the statistics of seven private railways in Tokyo.

(1000 Sr)

	Case	A-1 A-2	A-2	B-1	C-1 C-2	C-2	D-1
	Year	1990	1993	1990	1990	1993	1990
Rolling stock		32,580	48,870	43,440	21,720	43,440	43,440
Track		20,029	31,739	27,202	10,046	27,901	26,306
Electrical facilities		18,460	29,249	25,049	9,255	25,703	24,245
Other facilities		4,264	6,591	5,416	2,461	5,823	5,639
TOTAL		75,333	116,449	101,107	43,482	102,867	99,630

APPENDIX: TOTAL MAINTENANCE COST (2)

Case E (1000 Sr)

	1990	1993	1996, 2000	2010-
Rolling stock	32,580	38,010	38,010	43,440
Track	20,029	22,031	23,367	26,705
Electrical facilities	18,460	20,296	21,528	24,597
Other facilities	4,264	4,820	4,974	5,685
TOTAL	75,333	85,157	87,879	100,427

Case F (1000 Sr)

	1990	1993	1996	2000	2010-
Rolling stock	43,440	48,870	54,300	54,300	81,450
Track	27,203	31,737	32,644	34,457	40,805
Electrical facilities	25,075	29,250	30,079	31,739	37,599
Other facilities	5,743	6,591	7,021	7,230	9,591
TOTAL	101,461	116,448	124,044	127,726	169,445

Case G (1000 Sr)

	1990	1993, 1996, 2000	2010-
Rolling stock	43,440	43,440	54,300
Track	26,306	27,901	31,886
Electrical facilities	24,245	25,703	29,375
Other facilities	5,639	5,823	6,934
TOTAL	99,630	102,867	122,495

APPENDIX: MAINTENANCE COST OF TRACK (1)

*Unit cost of track maintenance		320 Yen/1000ton-km =182 Sucre/1000ton-km			
	Basic case				
	1990	1993	1996	2000	2010-
a. Annual ton-km (1000ton-km)	289,740	321,930	346,080	378,270	468,000
b. Annual cost (1000 Sr)	52,733	58,591	62,987	68,845	85,176

	Case	A-1 A-2	A-2	B-1	C-1 C-2	C-2	D-1
	Year	1990	1993	1990	1990	1993	1990
a. Annual ton-km (1000ton-km)		110,048	174,390	149,460	55,200	153,300	144,540
b. Annual cost (1000 Sr)		20,029	31,739	27,202	10,046	27,901	26,306

Note: 1. Unit cost of track maintenance is based on the statistics of seven major private railways in Tokyo. Exactly, it is 400 Yen per 1000ton-km. It is assumed in this Report that this value is divided into two 200 Yen block, one for portion of import materials and the other for domestically procured materials. For the portion of import materials, 200 Yen is multiplied by 1.1 for conversion to the applicable value to Ecuador. For the portion of domestically procured materials like ballast or wooden sleepers, the value 200 is cut to half. Thus, the unit cost of maintenance is assumed to be 182 Sucre/1000ton-km.

2. Conversion rate of currency is 1.75 Yen/Sucre.

APPENDIX: MAINTENANCE COST OF TRACK (2)

Case E

*Unit cost of track maintenance		320 Yen/1000ton-km =182 Sucre/1000ton-km		
	1990	1993	1996, 2000	2010-
a. Annual ton-km (1000ton-km)	110,048	121,052	128,389	146,730
b. Annual cost (1000 Sr)	20,029	22,031	23,367	26,705

Case F

	1990	1993	1996	2000	2010-
a. Annual ton-km (1000ton-km)	149,468	174,379	179,361	189,326	224,201
b. Annual cost (1000 Sr)	27,203	31,737	32,644	34,457	40,805

Case G

	1990	1993, 1996, 2000	2010-
a. Annual ton-km (1000ton-km)	144,540	153,300	175,200
b. Annual cost (1000 Sr)	26,306	27,901	31,886

APPENDIX: MAINTENANCE COST OF ELECTRICAL FACILITIES (1)

*Unit cost of maintenance of electrical facilities		44,000 Yen/1000 train-km =25,150 Sucre/1000 train-km			
	Basic case				
	1990	1993	1996	2000	2010-
a. Train-km (1000km/year)	1,932	2,146	2,307	2,522	3,120
b. Annual cost (1000 Sr)	48,590	53,972	58,021	63,428	78,468

	Case	A-1 A-2	A-2	B-1	C-1 C-2	C-2	D-1
	Year	1990	1993	1990	1990	1993	1990
a. Train-km (1000km/year)		734	1,163	996	368	1,022	964
b. Annual cost (1000 Sr)		18,460	29,249	25,049	9,255	25,703	24,245

Note: 1. Unit cost of maintenance of electrical facilities is based on the statistics of seven major private railways in Tokyo. Exactly, it is 44,910 Yen/1000 train-km. It is assumed in this Report that this value is divided into two portions, 80 per cent for import materials and 20 per cent for domestically procured materials. For the portion of import materials, the relevant value is multiplied by 1.1 for conversion to the applicable value to Ecuador. For the portion of the domestically procured materials, the value is cut to half. Thus, the unit cost of maintenance is assumed to be 25,150 Sucre/train-km.

2. Conversion rate of currency is 1.75 Yen/Sucre.

APPENDIX: MAINTENANCE COST OF ELECTRICAL FACILITIES (2)

Case E

*Unit cost of maintenance of electrical facilities <div> 44,000 Yen/1000 train-km =25,150 Sucre/1000 train-km </div>				
	1990	1993	1996, 2000	2010-
a. Train-km (1000km/year)	734	807	856	978
b. Annual cost (1000 Sr)	18,460	20,296	21,528	24,597

Case F

	1990	1993	1996	2000	2010-
a. Train-km (1000km/year)	997	1,163	1,196	1,262	1,495
b. Annual cost (1000 Sr)	25,075	29,250	30,079	31,739	37,599

Case G

	1990	1993, 1996, 2000	2010-
a. Train-km (1000km/year)	964	1,022	1,168
b. Annual cost (1000 Sr)	24,245	25,703	29,375

Appendix 1-12 DAILY CAR-KM AND TRAIN HOURS

APPENDIX: DAILY CAR-KM AND TRAIN HOURS (1)

	Case	Basic case				
	Year	1990	1993	1996	2000	2010-
a. Route length (km)		14.7				
b. Number of cars per trainset		5				
c. Number of trains per day		360	400	430	470	580
d. Car-km per day (km) [a x b x c]		26,460	29,400	31,605	34,545	42,630
e. Travelling time (min)		29				
f. Train hours (hr-min) [c x e]		174-00	193-20	207-50	227-10	280-20

	Case	A-1 A-2	A-2	B-1	C-1 C-2	C-2	D-1
	Year	1990	1993	1990	1990	1993	1990
a. Route length (km)		6.7	9.1	9.1	5.6	8.0	8.0
b. Number of cars per trainset		5					
c. Number of trains per day		300	350	300	* 300 180	350	330
d. Car-km per day (km) [a x b x c]		10,050	15,925	13,650	5,040	14,000	13,200
e. Travelling time (min)		13	18	18	11	16	16
f. Train hours (hr-min) [c x e]		65-00	105-00	90-00	*55-00 33-00	93-20	88-00

Note: 1. These cases are for partial opening of the system. Upon services over the entire route of 14.7 km in later years, figures of the 'Basic case' is applied.

2. Figures in 1990 of 'Case C-1,C-2' marked with '*' is a reference of the assumption of 300 trains per day with 3-car trainset.

APPENDIX: DAILY CAR-KM AND TRAIN HOURS (2)

= Case E =	1990	1993	1996,2000	2010
a. Route length	6.7 km			
b. Number of cars per trainset	5 cars			
c. Travelling time	13 min			
d. Number of trains per day	300	330	350	400
e. Car-km per day (km) [a x b x d]	10,050	11,055	11,725	13,400
f. Train hours (hr-min) [c x d]	65-00	71-30	75-50	86-40

= Case F =	1990	1993	1996	2000	2010
a. Route length	9.1 km				
b. Number of cars per trainset	5 cars				
c. Travelling time	18 min				
d. Number of trains per day	300	350	360	380	450
e. Car-km per day (km) [a x b x d]	13,650	15,925	16,380	17,290	20,475
f. Train hours (hr-min) [c x d]	90-00	105-00	108-00	114-00	135-00

= Case G =	1990	1993,1996,2000	2010
a. Route length	8.0 km		
b. Number of cars per trainset	5 cars		
c. Travelling time	16 min		
d. Number of trains per day	330	350	400
e. Car-km per day (km) [a x b x d]	13,200	14,000	16,000
f. Train hours (hr-min) [c x d]	88-00	93-20	106-40

Note: 1. Cases E,F and G are for partial opening and no further construction of the system.

Appendix 1-13 POWER CONSUMPTION FOR TRAIN OPERATION

APPENDIX: POWER CONSUMPTION FOR TRAIN OPERATION (1)

	Case	Basic case				
	Year	1990	1993	1996	2000	2010-
a. Car-km per day (km)		26,460	29,400	31,605	34,545	42,630
b. Car-km per month (1000km) [a x 365/12/1000]		805	894	961	1,051	1,297
c. Unit rate of power consumption		2.5 kWh/car-km				
d. Power consumption [b x c] (MWh/month)		2,012	2,235	2,402	2,627	3,245
e. Relating train hours per month for air conditioning		2,382	2,646	2,846	3,110	3,837
f. Monthly equivalent power consumption for column 'e' (MWh/month)		80	88	95	104	128
g. Monthly total of power consumption [d + f](MWh/month)		2,092	2,323	2,497	2,731	3,373
h. Basic charge (1000 Sucre)		1,963	2,325	2,325	3,049	3,049
i. Additional charge		3.5544 Sucre for each kWh				
j. Monthly cost (1000 Sucre)		9,399	10,582	11,200	12,756	15,038
k. Annual cost (1000 Sucre)		112,788	126,984	134,400	153,072	180,456

Note: 1 Unit rate of power consumption in column 'c' is based on the statistics of seven major railways in Tokyo.
 2 Power cost of column 'j' and 'k' is induced with Ecuadorian system applied to governmental customers.

APPENDIX: POWER CONSUMPTION FOR TRAIN OPERATION (2)

	Case	A-1 A-2	A-2	B-1	C-1 C-2	C-2	D-1
	Year	1990	1993	1990	1990	1993	1990
a. Car-km per day (km)		10,050	15,925	13,650	7,560	14,000	13,200
b. Car-km per month (1000km)		305	484	415	230	426	402
c. Unit rate of power consumption	2.5 kWh/car-km						
d. Power consumption [b x c](MWh/month)		763	1,210	1,038	575	1,065	1,005
e. Relating train hours per month for air conditioning		890	1,437	1,231	452	1,278	1,205
f. Monthly equivalent power consumption for column 'e' (MWh/month)		30	48	41	15	42	40
g. Monthly total of power consumption [d + f](MWh/month)		793	1,258	1,079	590	1,107	1,045
h. Basic charge (1000 Sucre)		1,223	1,223	1,223	861	1,223	1,223
i. Additional charge	3.5544 Sucre for each kWh						
j. Monthly power cost (1000 Sucre)		4,041	5,694	5,058	2,958	5,158	4,937
k. Annual cost (1000 Sucre)		48,492	68,328	60,696	35,496	61,896	59,244

Note: 1. Unit rate of power consumption in column 'c' is based on the statistics of seven major private railways in Tokyo.
2. Power cost in column 'j' and 'k' is induced with Ecuadorian system applied to governmental customers.

APPENDIX: POWER CONSUMPTION FOR TRAIN OPERATION (3)

= Case E =	1990	1993	1996, 2000	2010~
a. Car-km per day (km)	10,050	11,055	11,725	13,400
b. Car-km per month (1000km) [a x 365/12/1000]	306	336	357	408
c. Unit rate of power consumption	2.5 kWh/car-km			
d. Power consumption [b x c] (MWh/month)	765	840	893	1,020
e. Relating train hours per month for air conditioning	890	979	1,039	1,187
f. Monthly equivalent power consumption for column 'e' (MWh/month)	30	33	35	40
g. Monthly total of power consumption [d + f](MWh/month)	795	873	928	1,060
h. Basic charge (1000 S cure)	1,223			
i. Additional charge	3.5544 S cure for each kWh			
j. Monthly cost (1000 S cure)	4,050	4,327	4,523	4,992
k. Annual cost (1000 S cure)	48,600	51,924	54,276	59,904

Note: 1. Unit rate of power consumption in column 'c' is based on the statistics of seven major railways in Tokyo.

2. Power cost of column 'j' and 'k' is induced with Ecuadorian system applied to governmental customers.

APPENDIX: POWER CONSUMPTION FOR TRAIN OPERATION (4)

= Case F =	1990	1993	1996	2000	2010-
a. Car-km per day (km)	13,650	15,925	16,380	17,290	20,475
b. Car-km per month (1000km) [a x 365/12/1000]	415	484	498	526	623
c. Unit rate of power consumption	2.5 kWh/car-km				
d. Power consumption [b x c] (MWh/month)	1,038	1,210	1,245	1,315	1,558
e. Relating train hours per month for air conditioning	1,232	1,437	1,478	1,561	1,848
f. Monthly equivalent power consumption for column 'e' (MWh/month)	41	48	49	52	62
g. Monthly total of power consumption [d + f] (MWh/month)	1,079	1,258	1,294	1,367	1,620
h. Basic charge (1000 Sucre)	1,223				1,592
i. Additional charge	3.5544 Sucre for each 1kWh				
j. Monthly cost (1000 Sucre)	5,058	5,694	5,823	6,082	7,350
k. Annual cost (1000 Sucre)	60,696	68,328	69,876	72,984	88,200

Note: 1. Unit rate of power consumption in column 'c' is based on the statistics of seven major railways in Tokyo.
2. Power cost of column 'j' and 'k' is induced with Ecuadorian system applied to governmental customers.

APPENDIX: POWER CONSUMPTION FOR TRAIN OPERATION (5)

= Case G =	1990	1993,1996,2000	2010-
a. Car-km per day (km)	13,200	14,000	16,000
b. Car-km per month (1000km) [a x 365/12/1000]	402	426	487
c. Unit rate of power consumption	2.5 kWh/car-km		
d. Power consumption [b x c] (MWh/month)	1,005	1,065	1,218
e. Relating train hours per month for air conditioning	1,205	1,279	1,461
f. Monthly equivalent power consumption for column 'e' (MWh/month)	40	43	49
g. Monthly total of power consumption [d + f](MWh/month)	1,045	1,108	1,267
h. Basic charge (1000 Sucre)	1,223		1,592
i. Additional charge	3.5544 Sucre for each kWh		
j. Monthly cost (1000 Sucre)	4,937	5,161	6,095
k. Annual cost (1000 Sucre)	59,244	61,932	73,140

Note: 1. Unit rate of power consumption in column 'c' is based on the statistics of seven major railways in Tokyo.
2. Power cost of column 'j' and 'k' is induced with Ecuadorian system applied to governmental customers.

Appendix 1-14 ESTIMATION OF POWER CONSUMPTION FOR AIR CONDITIONING
OF TRAINS

1. Rate of power consumption for air-conditioners of a train

Rate of power consumption for air conditioning of a train is assumed as to be 100 kWh. This is the total of five railcars of a trainset, each railcar of which will be equipped with six units of air-conditioners.

2. Rate of hours to use air-conditioners

In consideration of the temperature in Ecuador, hours to use air conditioners of a train is assumed as to be from 9 a.m. until 5 p.m. This means that trains for early morning and late evening services won't use air-conditioners. Therefore, the rate of hours to use air-conditioners is determined to be 45 per cent.

For calculating the total hours for air conditioning, the train hours described in Appendix 1-12 is multiplied by the above rate.

3. Additional power consumption for air conditioning.

As the unit rate of power consumption in the column 'c' of Appendix 1-12 is based on the statistics of railways in Tokyo, it includes the power for air conditioning in summer time and also the power for electric heating in winter time in Japan. On the other hand, it is always hot in Ecuador and air conditioning will be required throughout the year. Therefore, in the calculation of power consumption for air conditioning in Ecuador, additional consideration is paid for four months only, the similar period of no consumption of electricity in Japan both for cooling and heating.

PLIEGO TARIFARIO

EMPRESA ELECTRICA DEL ECUADOR INC.

AGOSTO 1985

1. SERVICIO RESIDENCIAL

1.1. TARIFA R-1

APLICACION

- : Esta tarifa se aplicará a los abonados del servicio residencial que tengan un consumo mensual de hasta 70 kwh. Se aplicará también a los nuevos abonados que tengan una carga instalada de hasta 1000 vatios, mientras no establezcan consumos mensuales superiores a 70 kwh.

CARGOS

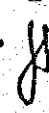
- : S/.15.48 mensuales como mínimo de pago con derecho a un consumo de hasta 5 kwh. S/.1.50 por cada uno de los siguientes 15 kwh consumidos durante el mes. S/.1.00 por cada kwh de exceso en el consumo durante el mes.

1.2. TARIFA R-2

APLICACION

- : Esta tarifa se aplicará a los abonados al servicio residencial que tengan un consumo mensual comprendido entre 71 y 150 kwh. Se aplicará también a los nuevos abonados que tengan una carga instalada de hasta 1000 vatios, mientras tengan consumos mensuales comprendidos entre 71 y 150 kwh.

CARGOS

- : S/.80.00 mensuales como mínimo de pago con derecho a un consumo de 40 kwh. 

S/.1.30 por cada uno de los siguientes
90 kwh consumidos durante el mes.

S/.2.9790 por cada kwh de exceso en el
consumo durante el mes.

1.3. TARIFA R-3

APLICACION

- : Esta tarifa se aplicará a los abonados al servicio residencial que tengan un consumo mensual mayor de 150 kwh. Se aplicará también a los nuevos abonados que tengan una carga instalada mayor de 1000 vatios, siempre que sus consumos mensuales sean superiores a 150 kwh.

CARGOS

- : S/.494.19 mensuales como mínimo de pago con derecho a un consumo de 150 kwh.
S/.3.4456 por cada uno de los siguientes 350 kwh consumidos durante el mes.
S/.3.4594 por cada kwh de exceso en el consumo durante el mes.
Un abonado será reclasificado automáticamente de tarifa residencial cuando presente consumos mensuales mayores o menores de los que tiene derecho en la tarifa que se encuentre clasificado al momento.

2. SERVICIO COMERCIAL

2.1. TARIFA C-1

APLICACION

- : Esta tarifa se aplicará a los abonados al servicio comercial que tengan consumo mensual de hasta 70 kwh y una carga instalada de hasta 10 kw.

CARGOS

- : S/.40.00 mensuales como mínimo de pago, con derecho a consumo de hasta 19 kwh.

S/.1.65 por cada uno de los siguientes
21 kwh consumidos durante el mes.
S/.1.18 por cada kwh de exceso en el
consumo durante el mes.

2.2. TARIFA C-2
APLICACION

: Esta tarifa se aplicará a los abonados
al servicio comercial que tengan consumo
mensual mayor de 70 kwh y una demanda
facturable de hasta 10 kw.

CARGOS

: S/.40.00 mensuales por kw de demanda
facturable como mínimo de pago, sin
derecho a consumo.
S/.2.21 por cada uno de los primeros 130
kwh consumidos durante el mes.
S/.3.7339 por cada uno de los siguientes
20 kwh consumidos durante el mes.
S/.3.9261 por cada kwh de exceso en el
consumo durante el mes.
Un abonado está reclasificado automá-
ticamente de tarifa comercial C-1 a
C-2 o viceversa cuando presente consumos
mensuales mayores o menores de los que
tiene derecho a la tarifa que se encuen-
tre clasificado al momento.

2.3. TARIFA C-3
APLICACION

: Esta tarifa se aplicará a los abonados
al servicio comercial que tengan una
demanda facturable mayor de 10 kw.

CARGOS

: S/.80.4452 por cada kw de demanda
facturable como mínimo de pago, sin
derecho a consumo.

S/.3.9399 por cada kwh de consumo durante el mes.

3. SERVICIO INDUSTRIAL

3.3. TARIFA I-1

APLICACION

: Esta tarifa se aplicará a los abonados al servicio industrial que utilizan la energía en trabajos de artesanía o pequeña industria, cuya carga instalada sea menos de 10 kw.

El servicio se suministrará aproximadamente a 60 ciclos 120/240 voltios y podrá ser monofásico o trifásico.

CARGOS

: S/.354.1658 mensuales como mínimo de pago con derecho a un consumo de hasta 100 kwh.

S/.2.6633 por cada kwh de exceso en el consumo durante el mes.

3.2. TARIFA I-2

APLICACION

: Esta tarifa se aplicará a los abonados al servicio industrial con una demanda facturable desde 10 kw hasta 2000 kw.

CARGOS

: S/.80.4452 mensuales por cada kw de demanda facturable como mínimo de pago, sin derecho a consumo.

S/.3.0890 por cada kwh de consumo durante el mes.

Un abonado será reclasificado de tarifa I-2 a tarifa I-4 cuando tenga una demanda facturable de más de 2000 kw en tres

(3) meses consecutivos o cuando el usuario lo solicite, siempre que cumpla las



condiciones de demanda establecidas por las tarifas I-2 o I-4 respectivamente.

3.3. TARIFA I-3

APLICACION

- : Esta tarifa se aplicará a los abonados al servicio industrial que tomen la energía solamente en horas que corresponden a las de mínima demanda de potencia del sistema (incluye periódicos matutinos).

CÁRGOS

- : S/.70.8357 mensuales por cada kw de demanda facturable como mínimo de pago sin derecho a consumo.
- S/.1.5855 por cada kwh de consumo durante el mes.

3.4. TARIFA I-4

APLICACION

- : Esta tarifa se aplicará a los abonados al servicio industrial cuya demanda facturable sea mayor de 2000 kw.

CÁRGOS

- : S/.203.1724 mensuales por cada kw de demanda facturable como mínimo de pago, sin derecho a consumo, multiplicado por un factor de corrección que se calculará de la siguiente forma:
El valor mensual de la demanda más alta que haya registrado la industria durante las horas de máxima demanda de potencia de la Empresa (18H00 a 21H00) dividido para la demanda máxima registrada por la industria dentro del mes.
El factor de corrección en ningún caso será inferior a 0.60 y la demanda mínima a facturarse no podrá ser inferior al



70% de la demanda máxima registrada en los últimos 12 meses.

S/.3.0890 por cada kwh de consumo durante el mes correspondiente a los 200 kwh por kw de demanda facturada.

S/.2.8280 por cada kwh de consumo durante el mes correspondiente a los siguientes 200 kwh por kw de demanda facturada.

S/.1.4825 por cada kwh de exceso en el consumo durante el mes.

Un abonado será reclasificado de tarifa I-4 a tarifa I-2 cuando el cliente lo solicite y éste cumpla con las condiciones de demanda facturable establecidas para la tarifa I-2.

4. DEMANDA FACTURABLE

Por demanda facturable se entiende la máxima demanda registrada en el respectivo medidor de demanda durante los últimos 12 meses incluido el de facturación.

Cuando la instalación del abonado no tenga medidor de demanda máxima la demanda facturable se computará de la siguiente manera:

- El 100% de los primeros 20 kw de carga instalada.
- El 80% de los siguientes 30 kw de carga instalada.
- El 70% de los siguientes 50 kw de carga instalada.
- El 60% del exceso.

Cualquier fracción que resultare del registro de medidores de demanda máxima o del cálculo indicado, se asimilará al entero próximo superior.

A los abonados clasificados con la tarifa I-4, la Empresa les instalará el medidor de demanda horaria en forma obligatoria.



5. CLAUSULA DEL FACTOR DE POTENCIA

En el caso de que el factor de potencia sea menor de 0.9, la factura mensual será recargada en la relación por cuociente entre 0.90 y el correspondiente factor de potencia obtenido mediante registro.

Este reajuste por bajo factor de potencia se lo aplicará a los abonados de tarifa Comercial C-3 e Industriales I-2 e I-4 y formará parte de su planilla mensual cuyo valor sirve para calcular el 10% de electrificación rural, según Decreto 124 de 5 de Abril de 1983, publicado en el Registro Oficial No.467 de Abril 8, 1983.

6. HORAS DE MAXIMA Y DE MINIMA DEMANDA

Para la aplicación de la tarifa I-4 se considera como horas de máxima demanda del sistema las comprendidas entre las 18H00 y 21H00.

Para la aplicación de la tarifa I-3 se consideran como horas de mínima demanda del sistema, las comprendidas entre las 02H00 y 06H00.

7. SERVICIOS A ENTIDADES OFICIALES

7.1. TARIFA E-0

APLICACION

: Esta tarifa se aplicará a todas las oficinas y dependencias fiscales, municipales, provinciales y otras cuyas características sean especificadas en la definición de servicio a entidades oficiales.

CARGOS

: S/.80.4452 mensuales por cada kw de demanda facturable como mínimo de pago sin derecho a consumo.
S/.3.5544 por cada kwh de consumo durante el mes.